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The Fog of War—In Peace.

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NO ONE enjoys being called an alarmist or a jingo or such like names. Especially is this true if that one happens to be a soldier, a man whose business it is to take things as they come and make the best of them. This is one good reason why Army men are slow to talk about the military needs of the nation. For this and other equally good reasons most of us have found it as a rule more pleasant to keep our views to ourselves.

However, there come times in the lives of the best intentioned when they are caught off their guard and yield to temptation. A pleasant old gentleman of talkative turn and casual interest unwittingly set the snare that caught me. When he learned that I was of the Army, his talk flowed easily from things in general to matters and conditions military across the water. In the end he concluded with a statement which I am gradually learning to regard as a pure Americanism. He said, "It is fortunate that we do not have to worry about such things."

He must have seen that I did not agree with him for he anticipated me by rounding into a discussion of the sisters three who preside over the military destinies of nations—Situation, Relation and Preparation.

When he had finished, I yielded to the impulse to present the military point of view. At its conclusion, he took me seriously to task.

"Then why don't you fellows do something about it—what are you for?" he asked.

I reminded him that we fellows were merely agents whose business it is to stand and wait.

"Then why don't *they* get busy—What's the matter with *them?*" he demanded.

"The Fog of War," I assured him for want of anything better to say.

"The what?" he inquired.

It was not wholly my fault. As I have said, he unwittingly set the trap. That little phrase was the trigger by which the trap was sprung.

The Fog of War is a most convenient little phrase; moreover, it is a very busy one. It works overtime, without regard to place or circumstance. When it is not occupied with its own legitimate affairs, it is kept busy answering calls from a surprising number of outside sources. At all times it must be prepared to bear the burden of excuses for many costly mistakes. In time of war these mistakes are mostly concerned with subjects of a purely military character—strategy, tactics, and the like. In time of peace these mistakes pertain to military policy, preparedness, or something of that kind. In time of war, it is a real, tangible screen behind which belligerent operations hide themselves until they are ready to do business. In time of peace, it is an imaginary cloud invoked to obscure important issues of military policy.

Over in Europe they are engaged in a struggle that is beyond the possibility of description. Adjectives fail us completely and serve only to emphasize the inadequacy of language. It is a war unparalleled in the history of the world, and the hope of every sane man and woman is that it may remain unparalleled in all the future. But in all of this stupendous conflict, the fog of war probably plays a less important part about the seats of government and on the fields of battle in Europe today than it does in the minds of the people of our own country.

There is a most excellent reason for this state of affairs. Over there, our neighbors are confronted by a definite and clean-cut problem based upon the simplest principles of life-and-death necessity. They have faced the situation without quibbling and have cleared the foreground of everything not absolutely pertinent to the business at hand.

Over here, we are confronted by a problem of the same kind. It differs from theirs only in that while their day of reckoning is at hand, ours is still ahead of us; while they are facing their problem frankly and with the determination to solve it once and for all, we are temporizing and are allowing ourselves to be led astray in a fog of our own making.

It is only fair to say that we are not entirely without excuse. Nations, like individuals, are prone to learn only by experience. Our experiences in war have not been of the sort to make lasting impressions. We have invariably been successful in spite of the fact that we have always had to resort to expedients. In the flush of success we have never stopped to reckon the after-cost of such a way of doing business. The conditions which direct the minds of a people to the necessity for military preparedness have not been present. We have been spared the sight of a hedge of bayonets bristling along our frontiers and this blessing has lulled us into the belief that no such hedge exists.

The problem is nevertheless in front of us, although if we take the trouble to analyze it, we will find that it is so simple that it is hardly worthy of the designation of problem. The fog brushed aside and the matter boiled down to its real proportions, it is nothing more involved than the act of taking out an insurance policy. If another simile be preferred, it is a proposition on a par with that of providing an adequate force of village police and of organizing them to give the best service in the guarding of the inhabitants and property of the village. In other words, it is merely a question of exercising reasonable precautions and of making use of sound business principles in carrying out the measures provided for.

That does not appear to be a difficult problem for a people such as ours to solve. We do not hesitate at the biggest problems of commerce, finance, construction or extension. The bigger they are, the more we like them. Magnitude serves only as a tonic to our energies. Our resources and our capacity are limited only by our imaginations. Were it not for the fog in which we persist in clouding it, the problem of proper military policy would amount to little more than an incident in the nation's daily life.

Reduced to plain English, it is such a simple matter that any man or woman of average intelligence is capable of immediately grasping and understanding it. In the first place, let us consider the element of the problem over which the fog bank lies thickest —the menace of militarism.

This menace is a bogieman only when it is viewed through the dimming, but magnifying, medium of the fog of war. It is a vague, imaginary form which looms threateningly only because

of the fog. Without considering it intelligently, we tell ourselves or let others tell us that it is a monster capable of gobbling up our national life and security in one great gulp, a monster that seeks to enchain our people in military servitude, to claim the best of the nation's youth and make of them food for gunpowder.

But is there any real bogieman? If we stop to think, we cannot fail to see that the people of the United States certainly have no reason for entertaining such a fear. The conditions in this country are not of the kind or type to breed such an evil. Our form of government is an effectual barrier to the introduction of such an evil. It is conceivable that in a country dominated by an individual or by a clique of individuals, the maintenance of a large military force might tempt the ruling power or powers to a line of conduct which would result in war. The only reason we could have in this country for such a fear is that we do not trust ourselves. Irrespective of our condition of military preparedness, be it great or small, we cannot have war in this country unless the people through their representatives so will it.

Again, is military preparedness synonomous with militarism? Not necessarily; in fact they cannot be synonomous except when the spirit of the people make them so. To force militarism upon the people of a republic is impossible. If they have the spirit that demands militarism, it cannot be kept from them. We have never wanted militarism or anything approaching it. We do not want it now. We shall never want it as long as our people bear in mind the principles upon which the country is founded. Therefore, we have nothing to fear from militarism no matter what proportions our military preparations might reach.

If the possession of a sufficient or even of a superfluous military establishment is to be regarded as a menace to the peace of a country, it would seem that we might reasonably hold the converse to be true and look for security from war in a lack of preparedness. To find an answer to this, we have only to search the history of this country. No country of any importance on earth has ever enjoyed a less degree of real military preparedness than has ours, yet war has attended every step in our development. The country was born from the throes of a war and it has averaged a war every thirty years of its existence as a nation.

The crux of the matter is extremely simple. We have only to remember that armies do not *cause* war. They do not make for

wars. The causing or making for, the bringing about, or whatever you may choose to call it, of wars, is chargeable solely to the people. Their interests are the only cause which can bring about war. The duly elected and presumably responsible representatives, the statesmen, are the only ones who can set the machinery of war in operation. The army is merely an instrument for bringing about the speediest possible conclusion to the trouble, once the people through their representatives have inaugurated it. The Army is an inert machine, incapable of action either for or against until the will of the people galvanizes it into a living instrument of destruction and gives direction to its efforts. It is a watchdog tied in the front yard, incapable of harming anybody or anything until it is loosed by its owner.

This simile leads to another misconception in which the military man seems to be held in the popular mind, namely, that the Army is a watchdog which is ever straining at its leash, ever struggiing to break its fastenings and plunge after the elusive and worthless bubble of military glory. Perhaps it would be fairer to say that a part of the people seem to think of the military man as a plotter, scheming and lobbying to wheedle the people into providing something they neither need nor want, all for the purpose of advancing his own interests in the matter of promotion. The people have come to hold their fighting men in suspicion. In every plan proposed for the reorganization of the Army, they look for some hidden scheme for promotion and, if the truth must be told, they have in the past too often found it or something closely akin to it. Necessarily every increase in the Army must carry with it promotion for some part of it, but the desire for this incidental promotion is in very few cases the actuating motive.

The compensations of a military career, however high the rank attained, are comparatively modest. When all has been said, a sense of satisfaction at work well done is the principal reward for military effort. All other rewards are fleeting and insignificant. To do good work of any kind requires proper tools. The military man in this country feels that he is being placed in a false position. He is a highly educated expert of his kind. In the event of active service, he knows that the public has a right to expect him, in the language of the day, to deliver the goods. He further knows that he will not be able to do so unless he has the machinery and material to work with. In other words, *he wants the tools*

of his trade so that should the time ever come when he is needed in his official capacity, he will be able to justify his maintenance in the eyes of those who have supported him against that day.

Now, let us inquire into the real attitude of the trained fighting man toward war. Let us analyze the soldier as an individual and see if there is any reason, real or imaginery, why he should be a fire-eater.

As a beginning, let us disabuse ourselves of the idea that the soldier is a man apart from his fellow-men, that he differs in any essential quality of citizenship from his brother who has elected to follow the law, medicine, or any of the other professions or trades. Let is be thoroughly understood that the soldier is, first and always, a citizen, a member of the electorate who has chosen to serve the country for a period in the military establishment. In order to bring the real relation closer home, let us remember that there is hardly a community, or for that matter a family, from one end of the land to the other that has not at one time or another numbered a soldier among its members. He will be recalled as a youngster of the ordinary run who grew up among the ordinary conditions and associations of community life and society. Because the service attracted him, he entered it, just as his brothers were attracted into some branch of civil life. In due time he returned to the community to take up the threads of civil life and to live the life of the average citizen. Both before and after his military service, there was nothing about him or his conduct to distinguish him from his fellow citizens. Let us follow him into the military service and see if there is anything about the training he received there that could encourage him to any but the soberest habits of thought and conduct.

Though we do not as a people know much about the inner workings of our small Army, we all do know that the foundation of military discipline is laid on model and well-regulated behavior. We all know that the restrictions of military life are many more and much greater than are required of the man in civil life. It then narrows itself down to a question of the line of thought, the point of view, which military training inculcates in the soldier. Is it that of the fire-eater or of the pacificist or of either?

As a matter of plain fact, there is no man on earth who dreads war as much or as keenly as does the trained soldier. The better the soldier he is, the more he dreads it. The reason is not hard to

understand. There is no man on earth who can appreciate what war means as does the trained soldier. To the eyes of the soldier alone is war completely stripped of its glory. To him alone it stands out clearly in all of its naked and repulsive horror. To the soldier who has gone through battle, the thought of war recalls a succession of days and nights blended into a jumbled nightmare of toil and deprivation, of agonizing doubt and dumb apprehension; a nightmare of sweating, choking, starving days and of reeking, troubled and sodden nights. To that man, war has no inspiration. He has faced its butchery and he has seen comrades go down to deaths of mangled agony under its merciless heel. To him who has seen it, there is not one moment to be recalled with pleasure; there are few whose memory of it does not cause a shudder of horror. The soldier has no illusions about war. With him it is a grim business, an offensive task to kill and maim human beings in an impersonal performance of duty imposed upon him by his country.

How about the trained soldier who has not undergone the test of battle? How about the man who has been trained to the work but who has not had the desire for military glory burned out of his soul by the fire of experience? The answer is that, next to the man who has experienced it, this man has the clearest conception of what war means. His training has taught him to visualize it in its proper light of mechanical, systematic killing and wounding of men. From top to bottom, from the general commanding down to the private, each man knows to a definite certainty not only the possibilities but the probabilities of war. He has no vision of an inspired and enraged populace rising with sticks and stones to defend its firesides. The commander knows to a nicety the death-dealing, devastating effect of the machine he controls, just as the private knows to the yard and quarter point of wind what he can do with his stubby brown rifle. This knowledge cannot fail to carry with it a train of sober thought. In plain English, knowing what they can do to the other man, they are able to estimate with painful accuracy what the other man, similarly equipped and trained, will be able to do to them. This is the real difference between the trained soldier and his civilian brother. The civilian thinks of war impersonally, as an affair in which he does not have to take part unless he chooses; the soldier thinks of it personally, as an affair in which he has to take part willingly

and, what is more to the point, one from which he may not emerge except on some death roll of honor. Both the civilian and the soldier are apt to affect a bravado as to the possible consequences of war; the soldier does so in order to conceal the sober realization which holds his soul in a grip of iron.

To sum up: The soldier has no more relish for being shot at than has any other man. As a matter of fact, he has considerably less because he has a more definite and vivid idea of what it means. The true soldier is never eager for war. He never wants war. He may want promotion, but even the tempting glitter of promotion is materially dimmed when it is viewed through the smoke of modern battle. If any emotion comes to the soldier's aid in war to cheer him on to his gruesome work, it is that of pride in the knowledge that he is ready and prepared to take a man's part in a man's game; that he is in a position to pay back to the country something of what he owes it.

The next fog bank to loom ahead of us in one that has been dissipated often enough in the short span of our national existence to have it put permanently out of business, but which never fails to return to its old stand the moment war's blast has ceased to blow. If it were labelled, it would probably read geographical and political security or words to that effect.

With the passage of time, these ancient barriers behind which we have sought to take refuge have dwindled in importance until today they are little more than walls of tissue to go down before the slightest breath of mischance. With each advance in transportation, the world has shrunken; miles have been reduced to yards and feet, months to days and hours. The splendid isolation of a century past has become the neighborly across-the-street intimacy of today. The pilgrimage of yesterday is the jaunt of today. In the struggle with the arts and sciences, geography has been so badly worsted that, today, the vast waterways to the east and west of us have the relative military importance of a moat about a sixteenth century fortification.

In the long run, geography has played us false. For a time it did give us comparative isolation and security. Today it gives us nothing except a coast line such as no other nation on earth is called upon to consider and defend, and a breadth which is equal to either ocean when considered in the light of military transportation. Moreover, another thing has contributed to wipe

out completely the onetime snugness of our geographical security. We have allowed ourselves to be drawn into the game of being a world power. We have burdened ourselves with scattered outposts extending over a half of the globe. The Philippine Islands, Guam, Hawaii, Alaska, Panama and Porto Rico are responsibilities which have robbed our geographical security of the little substance which remained to it, and they are responsibilities in the gravest sense of the word. They are heavy responsibilities, in which our interests are not alone concerned. The interests of the world are centered about Panama. The interests of powerful nations are concerned in our Pacific possessions. We have created these responsibilities and we must shoulder them whether we will or no. These are stubborn facts upon which the possibility or the advisability of war have no bearing.

Politically, our isolation is equally as mythical as it is geographically. True, we have kept ourselves clear of alliances to entangle us in the bickerings of our world neighbors. What is perhaps a still greater blessing, we have none of the art of diplomacy as it is practiced abroad. On the other hand, we do have an ever increasing volume of commercial interests which is an equally potent source of trouble. These interests must inevitably continue to increase. In spite of our pride in our country as it is today, we must admit that, figuratively, it is still in short skirts. We cannot hope to think of ourselves as ready for robes of maturity until we have struck a truer balance between resources and production, between men and acres. Until that time shall come, our interests must increase. It is hard to believe that the people of the United States will ever consent to see these intersts stop short of their maximum growth. To insure this end, we have two courses open to us. Either we may hedge our interests and our foreign relations about by a barrier of treaty stipulations, or we may prepare to take off our coats and stand guard over them. It is not hard to predict the course most to the liking of the average American. He rightly prefers to do business on a peaceful basis, but he is not afraid to fight when he finds himself being imposed upon. However, he cannot hope to make much of a fight unless he keeps in reasonable training.

There is another point of view to this subject and it is also labelled with responsibility. This big, fine country of ours is not an Eden provided for our transient occupancy and convenience.

It is a legacy which has been handed down to us by the generations of the past. Each generation had its part in making it what it is today and to each it was a treasured possession. Each gave it the best it had in it. They spared themselves nothing in the mighty task of hewing it from virgin forests and arid plains. Whenever it became necessary, they cheerfully gave up their lives in its defense. Their sacrifices may fairly represent the value they placed upon it. It is an ever increasing legacy in which our forefathers have done the hardest and roughest part of the work, leaving to us the easier task of continuing their work. Nor can we rightly regard it as an absolute bequest. It is a trust. Those who left it were not providing for any specific generation. They were building for their posterity for all time. Our stewardship of this trust is a double one in which we bear an equal responsibility toward those who have gone before and toward those who are to follow us. The problem of administering this legacy and of delivering it into the hands of our successors is one we cannot shirk. The manner in which we shall guard it rests with us. We cannot rely upon the measures which were sufficient for yesterday. To have done so will be no excuse for failure today. The generation of yesterday met the situation with measures that answered their purposes; they may not have been the best, but they sufficed. We must do the same. If conditions have changed, we must change our system to meet them. It is not a matter for temporizing or quibbling. We cannot dodge the responsibility if we wish to. Be it heavy or light, it is an inheritance along with the benefits and obligations of citizenship. If we do not safeguard this trust and hand it over intact to our co-heirs of the future, we must be prepared to suffer their just condemnation. Senator Ingalls once summed up the whole subject in a single terse sentence. He said: "You have got to write history of which your children will be proud or at which they will blush."

This country is not a legacy on which we can place insurance. The only insurance with which a nation may hedge about its future must be of the nature of prophylaxis. Military preparation is the only available prophylaxis. It does not always prevent war, but it goes a long way toward that end. When it does not prevent it, military preparedness is the best panacea for war. It ends war, and the more complete the preparation the more quickly it ends the war. This is the most important consideration about

the subject of war. The evils of war are not proportionate to the size of the forces engaged. The actual participants in hostilities are not the real sufferers. The women and children, the old and infirm, the noncombatants are the ones who suffer most from the paralysis of national life attendant upon war whatever may be its magnitude. The shorter the war, the sooner this is ended.

We are accustomed these days to taking big factors of safety in everything we undertake. The man who attempts to skim through on the minimum factor and fails gets little sympathy from us. We are inclined to think of him not as being shrewd, but as being skimpy in his work. If we fail to take a proper factor of safety in the matter of defensive preparedness, we ought not to feel abused when our walls of sand begin to crumble around us.

The fog bank under which our problem generally makes its final stand is that of expense, but it is a cloud which serves to fool no one. We know that the people of the United States are not in the habit of balking at expense. They either want a thing or they do not want it. If they do want it, they get it, and they do not worry about their ability to pay for it. They are not as a rule satisfied with any but the best of everything. As a matter of fact, it is our common boast that the best is none too good for us, yet when the subject of military preparedness is broached, we are apt to stop, look and listen, before we loosen the purse strings.

We are told—and truly—that our small Army costs almost as much as do the vast armies of the war powers of Europe, and without thinking we wonder why. The explanation is simple and lies in the difference in our military systems. Primarily, it is a question of the relative cost of voluntary and of compulsory military service. Secondarily, it is a question of the way in which the money is spent.

In the United States we have a system of voluntary military service. In Europe they have very generally the system of compulsory military service. In this country the people prefer to have their necessary fighting done by men whom they hire for that purpose just as they hire men for any other branch of the public service. Over there every able bodied man does a period of military service as a matter of legal obligation. In other words, we believe in hiring our fighting done; they believe in making them-

selves ready to do their own fighting. The American who enters the service expects an adequate business return. In Europe, the man who enters the service thinks of it as the payment of a legal obligation. In the one case, the man is working for a salary; in the other, he is being little more than supported. As an example of what is meant, it may be said that the pay of a private in our service in the first year of his enlistment would be enough to hire nine or ten German soldiers or fifty French or Russian soldiers for the same period.

As I have said, this is the primary reason why our small Army costs us so much. The other reason lies in the way in which we spend the money. In Europe they are better military shoppers than we are. Their main idea is to get one hundred cents worth of military preparedness and military efficiency out of every dollar laid out. They set aside money for fighting men and fighting material and they make a business of getting their money's worth. They are wholly intent on the main issue and do not worry about the fuss and feathers. They have experts to determine what is needed and what is best and when these men reach a conclusion it is final. If a thing contributes to fighting efficiency and fits in with their scheme of military necessities, they buy it no matter what it costs. If a thing does not meet with some real, military demand, they let it alone. Economy is a stern necessity with them and utility is the watchword by which they are guided.

Before citing an illustration of what is meant, it is only fair to state that, if there is any extravagance or poor shopping methods in the spending of the money appropriated for the support of the Army, it is not the fault of the military authorities. Any one who cares to investigate the subject will soon discover that every cent of the money so appropriated must be and is spent in strict accordance with rules and regulations laid down by the lawmaking authorities, the representatives of the people. If our military policy is an expensive one, it is so because the people have chosen an expensive system; if the money appropriated for the Army is not economically expended, it is because the people, through their representatives, have taken upon themselves the burden of administrative detail, leaving to their military experts merely the part of agents. Without full or technical knowledge of what is needed or what is best, the people are prone to interfere in the details of policy and administration to an expensive degree.

For an example, let us take one small detail, a matter of uniform. The French soldier has but one uniform. When it is new, he uses it for dress-up purposes. When it becomes a little worn, he uses it for drill and ordinary purposes. When it is old, he uses it for working clothes. His one and only uniform serves his every purpose and it serves him to the last cent's worth of what it cost the government. Our soldier has three distinct uniforms with two or three other variations and combinations. First, he has the traditional blue, or dress, uniform. He wears this for ceremonies and dress-up occasions. When it becomes too shabby for these purposes, it goes to the garbage can. He has the woolen service uniform. He wears this for drill and ordinary day work about the garrison. When he goes into the field he discards the coat, changes the cap for the service hat, adds a sweater to the combination and sallies forth. When he has to work, he dons a suit of denim known as fatigue clothes. When his service takes him into a warm limate, he changes all of this for a suit of cotton service uniform. In short, in garrison the soldier has a raft of clothing which is a care to him and to his officers. In the field, he has no use for the greater part of it. When he changes station, as he does with great frequency, he throws away all that he is permitted to discard. The Government pays for all of this through the clothing allowance which it makes to the soldier.

This matter of dress uniform is one small item. It would be difficult for one without access to actual figures to say exactly what it amounts to each year. Under normal conditions, with the Army distributed in its posts throughout the United States, it would be safe to say that the amount will run into the hundreds of thousands. One hundred thousand dollars is enough to pay, feed and clothe a matter of two hundred and seventy-five soldiers.

Some years ago, the military authorities were seriously considering the abolishing of this uniform. When this intention was announced it raised a storm of protest throughout the country that caused the matter to be dropped. This protest was a matter of sentiment, pure and simple. This uniform does not enter in any way into the fighting efficiency of the Army. It is nothing more than expensive fuss and feathers.

There are other and larger items of expense which, if we are to believe our experts, might be curtailed. Expensive and unnecessary posts is one item. Expensive administration due to

the scattering of a small force over a large area is another. The importance of these two latter items may be judged by an extract from a report on the organization of the land forces published by authority of the Secretary of War in 1912. Under the subject of administration it is stated that:

> Studies at the War College indicate that if the present mobile Army were concentrated in eight posts, its cost would be reduced by about $5,500,000 per annum. In six years this saving would pay for the new quartering of the mobile army, even if nothing could be realized from the sale of real estate no longer needed.

These latter economies are difficult to effect for the reason that the people themselves are the first to oppose them. The presence of a post in a locality means a steady source of income, a business asset, to an influential element in the vicinity, and it is one which they guard with great care. The mere mention of abandoning a post in any given locality is sure to raise a storm strong enough to blow a protest—and probably a delegation—to Washington. It is not a question with them of possible governmental economy, but of the cutting off of a source of revenue.

No one will quetion the right of the people to do with their Army and their money as they please. If they prefer loose business methods, it is their right. On the other hand, there seems to be no good reason why they should balk at paying the fiddler.

A little thought will serve to show that, whatever may be the amount appropriated for the support of the Army, not one cent is wasted. There is no surer or quicker way of putting it back into circulation. It is not money put aside in a war chest, withdrawn from circulation, hoarded up to await the trumpet of Mars before coming back into usefulness. Practically every cent of it is back in the hands of the people before the end of the year for which it was appropriated. The only part which must not necessarily and immediately go back into the public keeping is that which is paid to the soldier himself. Readily available statistics will show that the great bulk of this goes into the tills of the public almost as fast as it is paid into the hands of the soldier. From 5 to 10 per cent. would be a liberal estimate of the amount actually laid aside by either officer or soldier.

Of late years the Army has come into more than its accustomed share of discussion, but it has been mostly discussion. We do not seem to get anywhere; perhaps we do not know how to get ahead; perhaps we do not want to. It may be that we prefer a

beaten circle to a plain straightaway. We tell ourselves that we do not want an Army, yet we go on maintaining a very expensive one. We admit that it is expensive, but we do nothing along lines of real economy. We assure ourselves that we have no need for an Army—and we go on building up the sort of conditions that from the beginning of the world have led inevitably to the employment of armies.

I sometimes catch myself asking myself, what is it all about? One the one hand I see the military man planning and working for an ideal of military efficiency which through no fault of his own he seems destined never to reach. He is both honest and earnest in his efforts. As a citizen whose mind is not distracted from the military viewpoint by matters of private or business concern, he feels that he is able to arrive at a more definite estimate of our military situation than can the civilian. As an expert in military matters, he feels that he is able to form a true estimate of our military preparedness. He feels that he is a citizen on the inside looking out. Being on the inside and on the job 365 days in the year, he feels that he is able to get a truer perspective and a clearer definition of the situation than can his brother in civil life.

On the other hand, I see our brother in civil life. He is busy with his own affairs. His time is filled with the insistent demands of the present. He has little time to speculate upon the possibilities of ruptures in the great family of nations. He is inclined to look upon the military plan, with ideas centered upon the future, as a mildly eccentric and somewhat excited individual who enjoys riding a hobby. Discussion between the two is liable to degenerate into a sort of an argument we used to have when we were boys. It began with a flat assertion and an equally flat denial and degenerated into an alternation of "'Tis" and "'Taint" which kept up until both were tired of the subject and let it drop.

Both of these men have lots of good, hard, common sense. Both are earnest and honest in what they think. Public spirit, or patriotism, or whatever you want to call it, is about equally distributed between the two. The main trouble is that they do not speak the same language.

I have often wondered what would happen if these two could only get together once for a real heart-to-heart talk in good, plain English. One thing is certain. The Fog of War would stand a mighty good chance of losing a customer of long standing.

The Siege of Adrianople.

By Major S. C. Vestal, Coast Artillery Corps.

THE IMMEDIATE THEATER OF WAR.

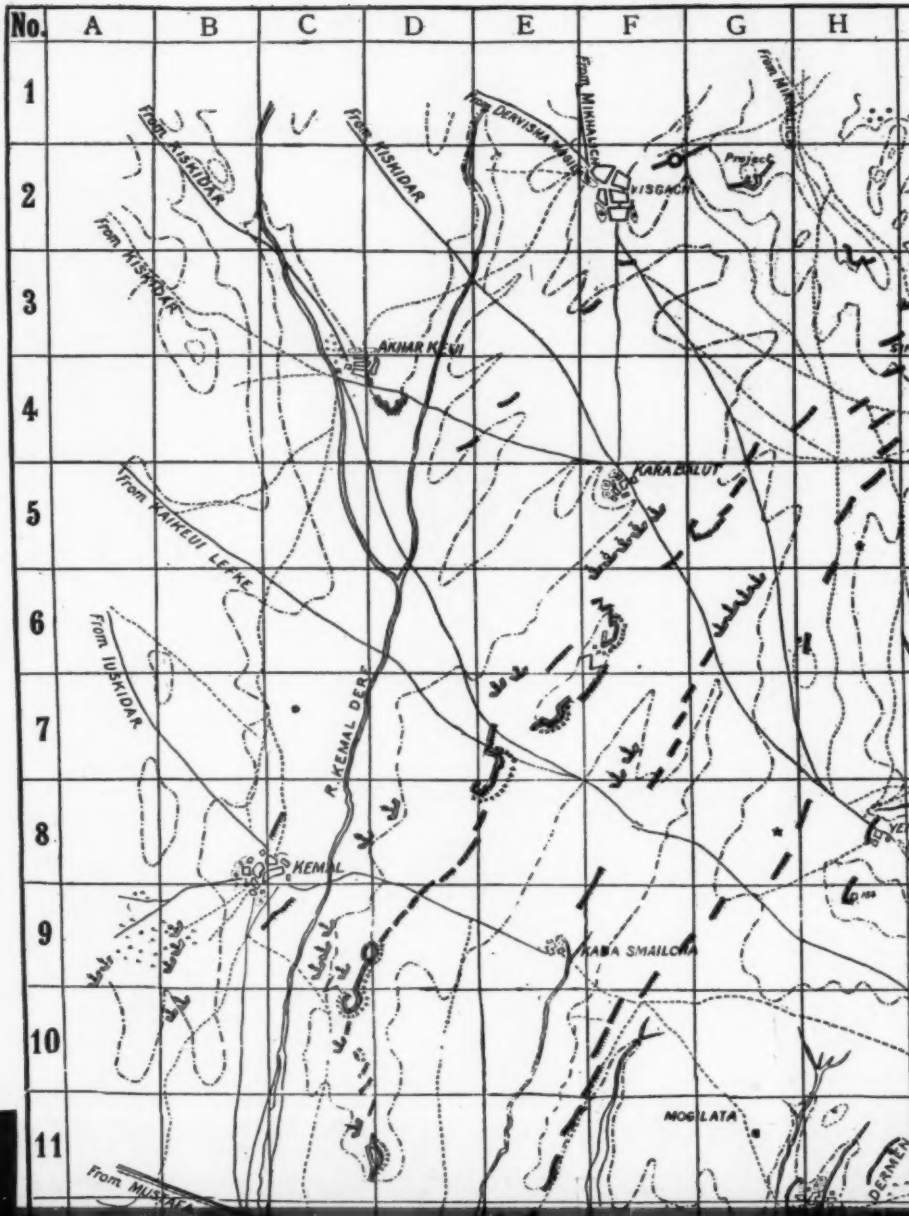
THE Istranja and Rhodope mountains form a natural military frontier along a line running generally east and west in the latitude of Adrianople. This frontier can be crossed by military forces through a wide gap extending from Adrianople to Kirk Kilissa. The historic lines of invasion through the gap are along the Maritza and Tunja valleys which have been blocked, since the beginning of authentic history, by the fortress of Adrianople. Today, only one railway and one metalled road between Bulgaria and Thrace cross this frontier; and both follow the Maritza valley and pass through Adrianople. Elsewhere, what are shown on the maps as roads are merely tracks; but the country between Adrianople and Kirk Kilissa and along a wide north and south belt extending into Bulgaria is open and rolling and may be traversed by armies.

The military position of Turkey in this theater at the beginning of the war with the Balkan Allies in October, 1912, was strategically strong. Her troops assembled along an excellent line of defense between Adrianople and Kirk Kilissa, where they could await the enemy or take the offensive with many natural advantages in her favor. The flanks were secure. The right rested on the Istranja Mountains and the Black Sea which was commanded by the Turks; the left, on the Rhodope Mountains and the Maritza River. Her bases, Constantinople, Rhodosto, and other ports on the Sea of Marmora, which was virtually a Turkish lake, were equally secure. Her armies holding the line of defense had safe communications by road and railway and by sea with these bases and with the vast resources in men, animals, and supplies of her Asiatic provinces.[1]

DECLARATION OF WAR, PLANS, AND OPPOSING FORCES.

Turkey declared war on Bulgaria on October 17, 1912. On that date, three Bulgarian armies, the II, I, III, were concentrated in Southeastern Bulgaria opposite the Adrianople-Kirk Kilissa gap,

[1] D, pp. 11, 17, 19.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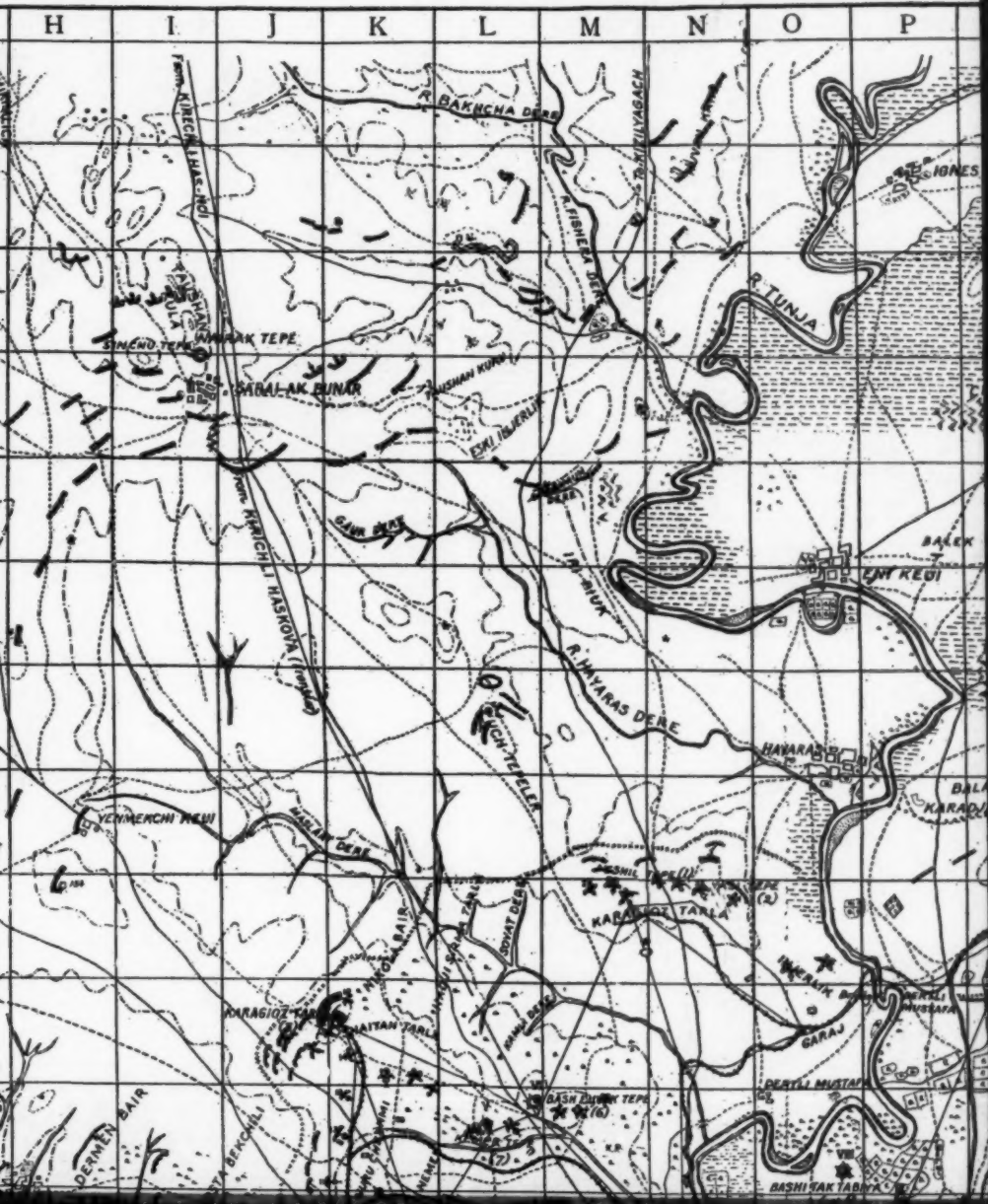
VISGACA
AKHAR KEUI
KARA BULUT
From KATIKEUI LEFKE
From IUBKIDAR
R. KEMAL DERE
KEMAL
KABA SMAILCHA
MOGILATA
From MUSKAT

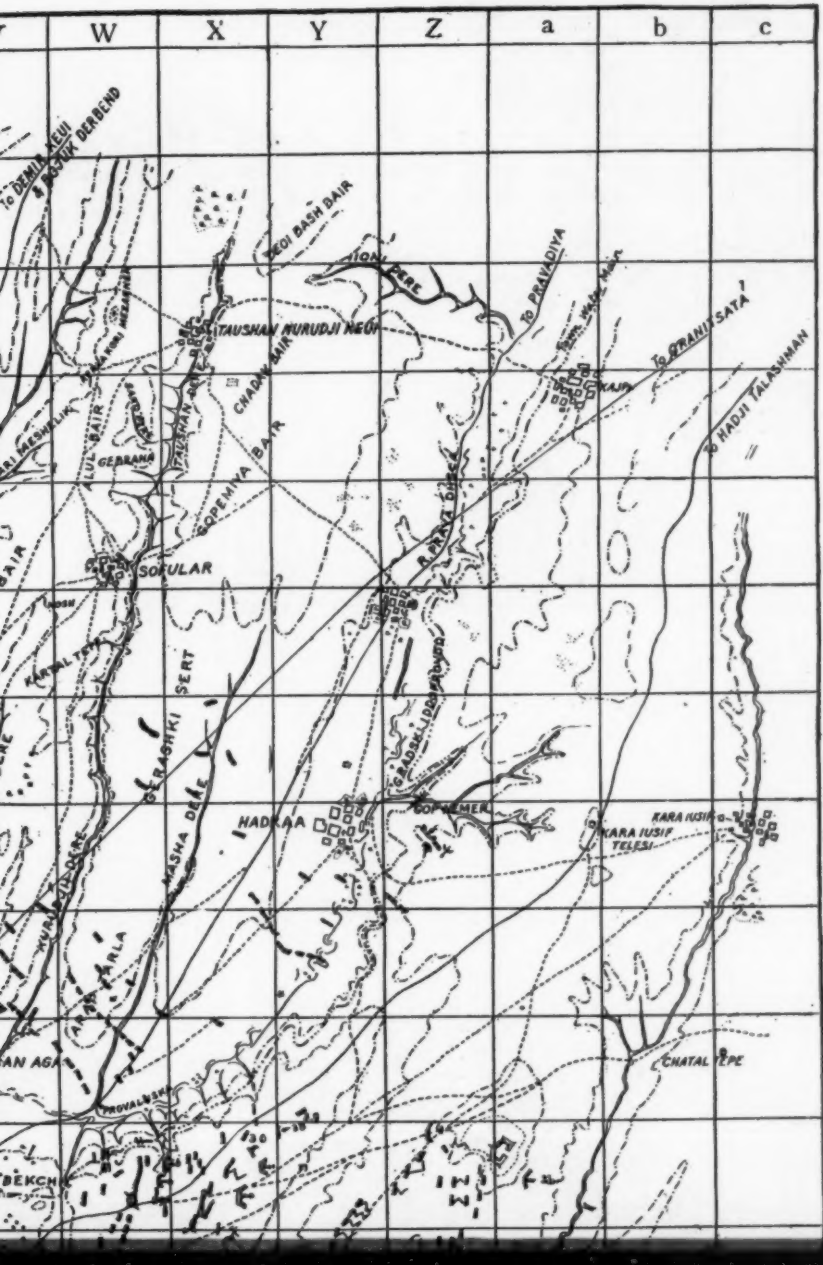
PLAN
OF THE
ORDIN (ADRIANOPLE) MANOEUVRE

From the Royal Engineers Journal, June 1914



EUVRE FORTRESS.

l, June 1914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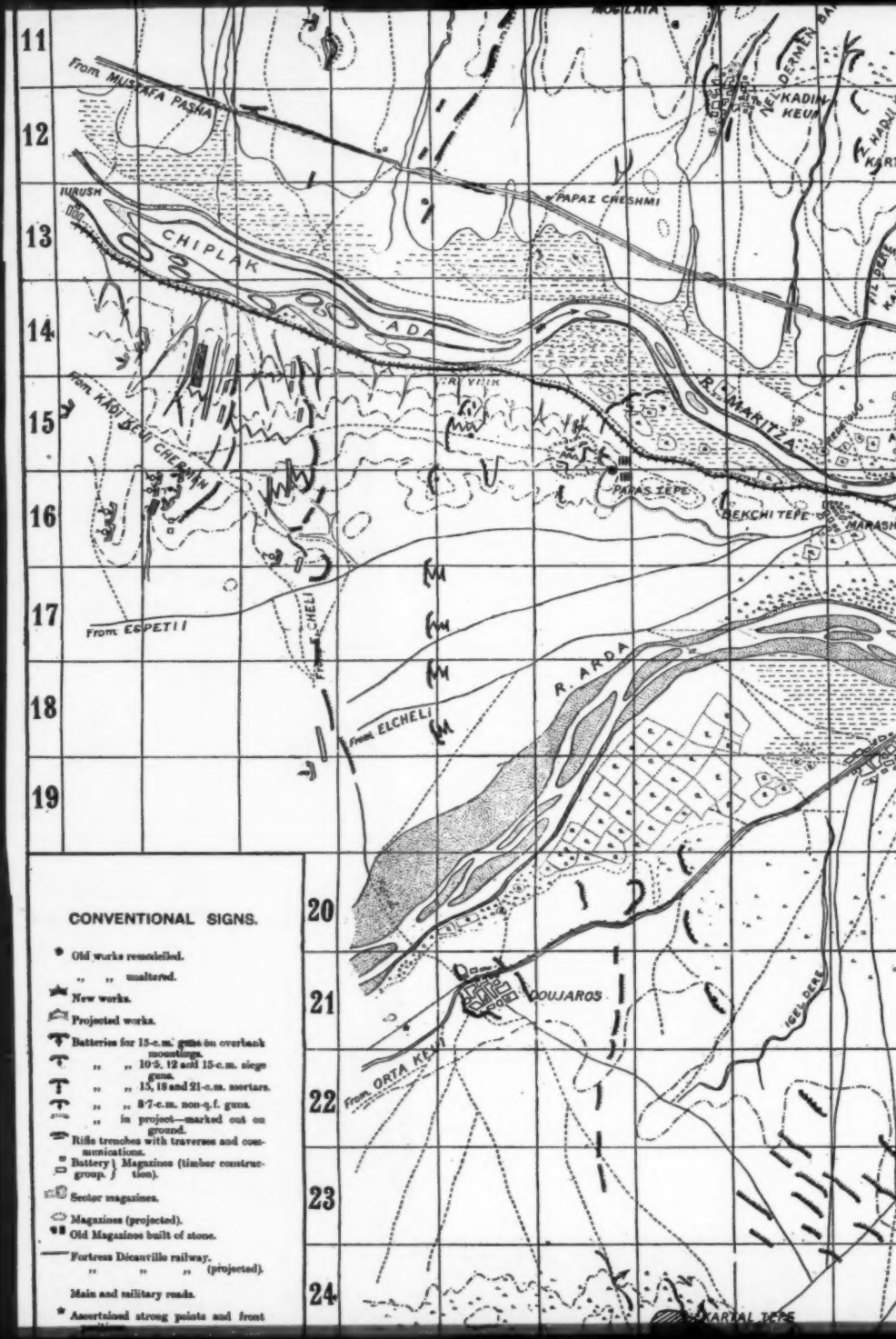
To HADJI TALASHMAN
GOPEMIYA BAIR
KARAL TEPE
KARA IUSIF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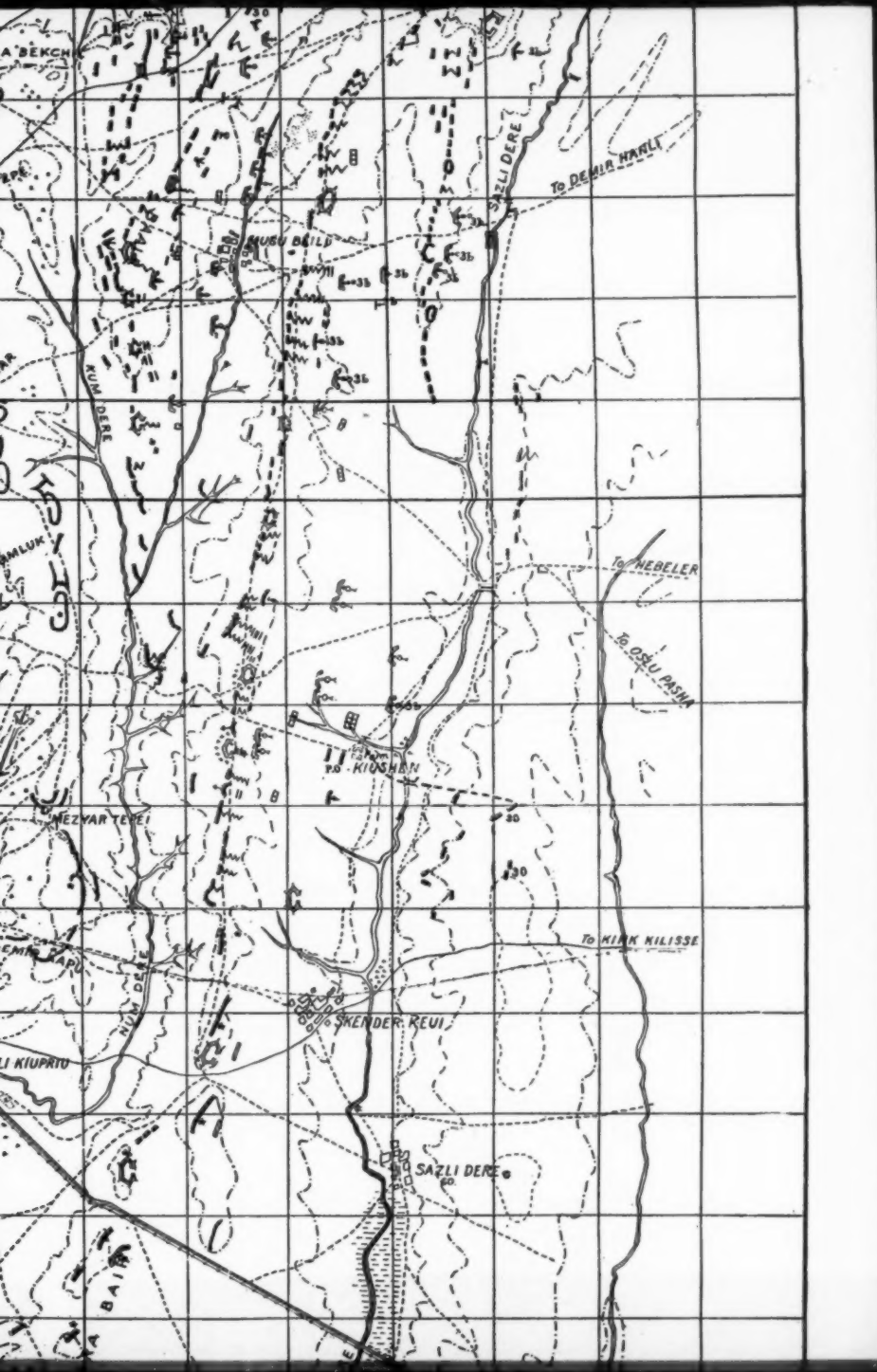
From MUSTAFA PASHA
IURUSH
CHIPLAK ADA
PAPAZ CHESHMI
From KARTJEVI CHESHMI
R. MARITZA
PAPAS TEPE
DEKCHI TEPE
From ESPETI
From ELCHELI
R. ARDA
From ELCHELI
From ORTA KEUI
DOUJAROS
KARIAL TEPE
CONVENTIONAL SIGNS.
Old works remodelled.
,, ,, unaltered.
New works.
Projected works.
Batteries for 15-c.m. guns on overbank mountings.
,, ,, 10·5, 12 and 15-c.m. siege guns.
,, ,, 15, 18 and 21-c.m. mortars.
,, ,, 8·7-c.m. non-q.f. guns.
,, in project—marked out on ground.
Rifle trenches with traverses and communications.
Battery group. Magazines (timber construction).
Sector magazines.
Magazines (projected).
Old Magazines built of stone.
Fortress Decauville railway.
,, ,, ,, (projected).
Main and military roads.
Ascertained strong points and front

KADIN KEUI
KARTAL TEPE
KAZAN TEPE (4)
BANAL CHESHME
CHATALSU
HEDEBLIK (9)
H. BEKLIK
KUM MAKHLA
R. MARITZA
ADRIAN
KARAGACH
KARAGACH T. (12)
CHORLI KEUI
DEMIRDESH
DEMIRDESH (11)
BOSNA KEUI (10)
TOKAT BAIR
PAMUK TEPE
BASHTAK TABIYA (18)
INEMER BERE
AINALU TEPE (8)
PAGINA
CHAT TEPE
ERMAN
ASHIATLI TARLA
MARASH
SARIGHIOL
GEL DERE

ADRIANOPLE
BASHI TAK TABIYA
(18)
(19)
ASI YOLU
(21)
CHIFTE CHESHME
AHADI DERE
KANATI KIURKH CHESHMESI
(22)
KIUK CHESHME
(23)
CHEGDET TANLI CHESHME
ESKI MEZARLIK
DILDIZ
(24)
DERE BAIR
(25)
TOP-YOLU
(26)
KARA BAIR
(27)
KIRKH KHANE MAKH
DELO
KAVAK
(28)
SERBAN DERE
TEKKE DERE
ESKI HAMLUK
MACHADJI DERE
KIVALI DERE
MEZYAR
DEMIR KAPU
SOUK KUN
KIVALI KIUPRIU
OMPUDJA
PASHA CHAIR
PASHA CHAIR-FARM
BOSNA KEUI
(10)
BOSNA


A BEKCH
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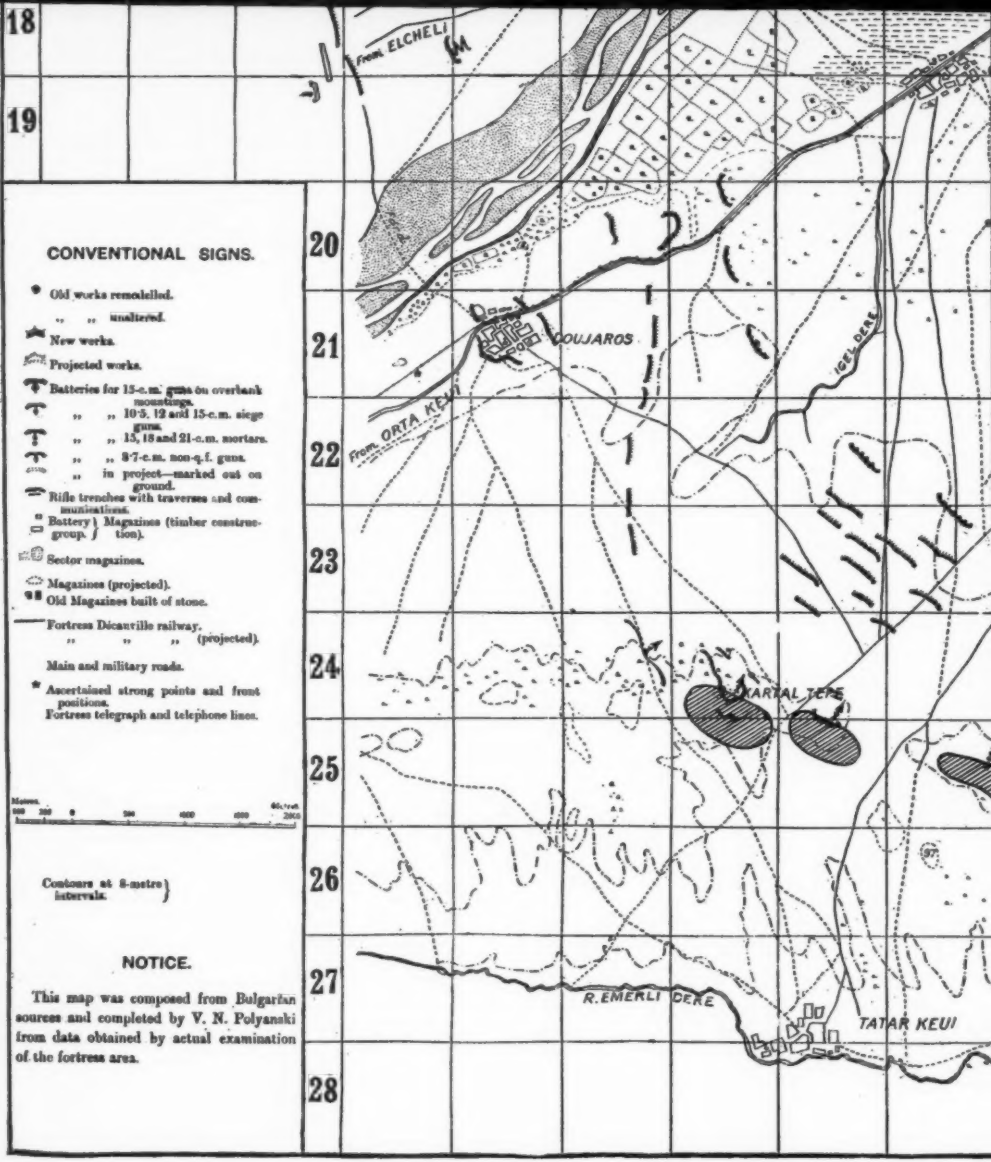
To DEMIR HARLI
MUSU BEILI
KUM DERE
To HEBELER
To OSKU PASHA
KIOSHEN
MEZYAR TEPE
To KIRK KILISSE
SKENDER REUI
SAZLI DERE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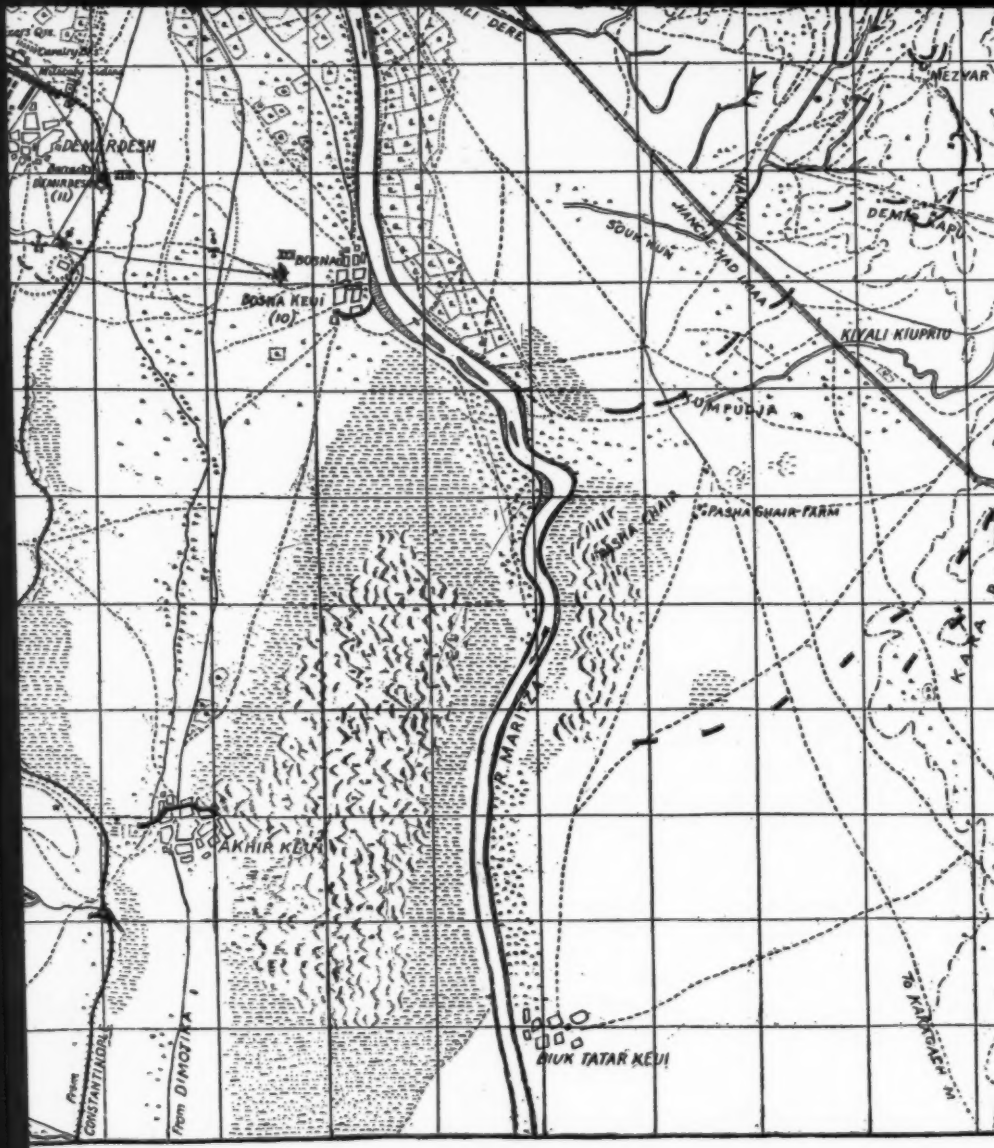
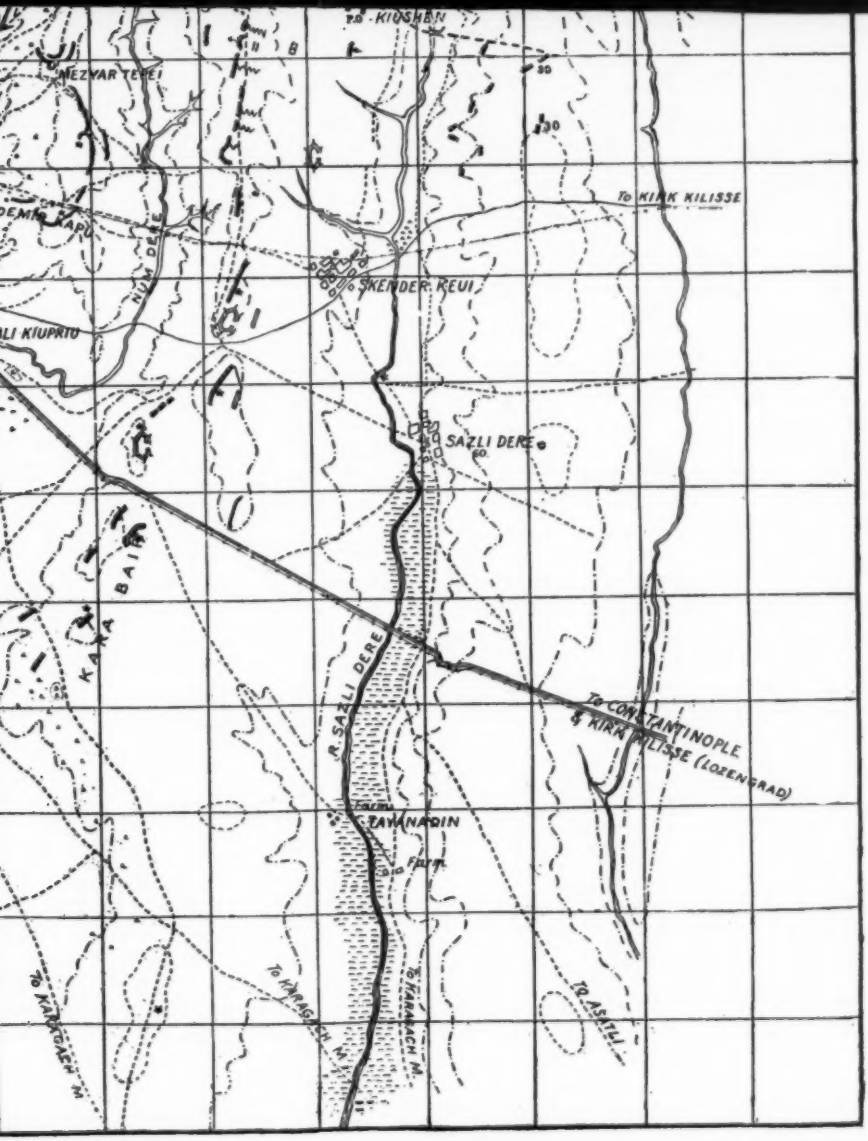
From ELCHELI
DOUJAROS
From ORTA KEUI
IGEL DERE
KARTAL TEPE
R. EMERLI DERE
TATAR KEUI
CONVENTIONAL SIGNS.
Old works remodelled.
,, ,, unaltered.
New works.
Projected works.
Batteries for 15-c.m. guns on overbank mountings.
,, ,, 10·5, 12 and 15-c.m. siege guns.
,, ,, 15, 18 and 21-c.m. mortars.
,, ,, 8·7-c.m. non-q.f. guns.
,, in project—marked out on ground.
Rifle trenches with traverses and communications.
Battery group. Magazines (timber construction).
Sector magazines.
Magazines (projected).
Old Magazines built of stone.
Fortress Décauville railway.
,, ,, ,, (projected).
Main and military roads.
Ascertained strong points and front positions.
Fortress telegraph and telephone lines.
Contours at 8-metre intervals.
NOTICE.
This map was composed from Bulgarian sources and completed by V. N. Polyanski from data obtained by actual examination of the fortress area.

CHORE KEUI
KARAGAC
(12)
DEMIRDESH
(11)
TEKIRDAGH
TOKAT BAIR
PAMUK TEPE
PAMUK SIRTI
AKHIR
ATAR KEUI
EMERLI
P EMERLI DERE
from CONSTANTINOPLE
from DIMOTIKA


DEMIRDESH
BOSNA KEUI
(10)
BOSNA
SOUK-SUIR
KIYALI KIUPRIU
SUMPUDJA
PASHA GHAIR-FARM
R. MARITZA
AKHIR KEUI
BIUK TATAR KEUI
From CONSTANTINOPLE
From D'INOUTKA
To KARAGACH


KIDSHEN
NEZVAR TEPEI
To KIRK KILISSE
SKENDER REUI
SAZLI DERE
R. SAZLI DERE
KARA BAIR
To CONSTANTINOPLE & KIRK KILISSE (LOZENGRAD)
TAYANADIN
To KARAGACH M.
To KARAGACH M.
To ASSILI

on a front of about 60 miles. These armies, in the order named, were in echelon from the right. The II Army, under Gen. Ivanof, was on the main road and railway, astride the Maritza, in the area between Hebitchevo and Harmanli and was nearest the Turkish frontier; the I Army, commanded by Gen. Koutinchef, was about Kizil Agatch on the Tunja to the left and rear of the II Army; and the III Army, under Gen. Dimitrief, lay still farther to the left and rear, a little south of Stradalja.

The II Army was composed of the 8th, 9th and 11th Divisions;[2] the I, of the 1st, 3rd, and 10th Divisions; and the III, of the 4th, 5th, and 6th Divisions. Each division consisted of three infantry brigades and sixty guns; each infantry brigade, of two regiments of four 4-company battalions of a war strength of about 1,050 men. Each of the three armies exceeded 75,000 men. They were under the control of Gen. Savof, who acted as commander-in-chief under the king. The royal headquarters were at Stara Zagora.[3]

The Bulgarian plan was (1) to surround and mask the fortress of Adrianople as quickly as possible and make the investing army a pivot of maneuver for the other armies; (2) to attack and take Kirk Kilissa at all costs; and (3) with the troops that had stormed Kirk Kilissa and with every man that could be spared from the blockade of Adrianople to seek the main Turkish mass wherever it should be found.[4]

Both the Bulgarian and the Turkish plans of campaign, starting from opposite points of view, were based largely upon the Turkish maneuvers about Adrianople in the fall of 1910, which were devised by Field Marshal Von der Goltz. The general idea of these maneuvers was that Adrianople had been invested by a Blue (Bulgarian) Army and that two Blue masses were advancing upon Constantinople, one passing Adrianople to the west, the other to the east, with the intention of uniting to the south of the city against the main Red (Turkish) Army. Abdulla Pasha, now in command of the main Turkish army, commanded the Blue Army at the maneuvers. The Bulgarians determined to attempt to induce Abdulla to expect the Bulgarians from the direction in which Von der Goltz had made them appear in 1910. To confirm

[2]The 11th Division was not fully mobilized until the end of October and did not join until somewhat later. D, p. 35.
[3]D, pp. 30-35; E, p. 58.
[4]D, p. 23.

him in the idea, they issued orders for the I Army to concentrate at Haskovo, which lies northwest of Adrianople, and actually sent the 1st Division by rail to the railway station nearest that place. But the men were kept on the trains and were sent to Yamboli in the Tunja valley. The 1st Brigade of the 2nd Division was sent to Haskovo, where it remained until the advance began, when it was attached to the II Army, and with that army eventually took part in the siege of Adrianople. As a further inducement to lead the Turks to reinforce Adrianople to the neglect of Kirk Kilissa, the II Army was to lead in the advance followed by the I Army, while the III Army, whose existence was kept as a profound secret, was held back. Strategically the situation was much in favor of the Turks. For with a first-class fortress at Adrianople and a strongly intrenched camp at Kirk Kilissa 30 miles away and with almost impassable ground beyond the outer flanks, the Bulgarian field armies could not advance without taking one of the places, and whichever was attacked the other must be masked.[5]

The Bulgarian armies began to move on October 18 and the advance troops of the I and II armies crossed the frontier. The Maritza above Adrianople runs through a low-lying, marshy valley, and, during the rainy season, is liable to flood. The only bridge within 50 miles of Adrianople is at Mustafa Pasha, about 20 miles above the city. This bridge was therefore of great importance to a force contemplating the siege of Adrianople and dragging with it guns too heavy for ponton or improvised military bridges. The Turks attempted to destroy it; but two of the three charges, which they employed, failed to explode, and the third merely took a chunk out of the side of the old Roman structure and did little damage. Two skirmishes took place with the retreating rear guards, one at Hadikeui on the west, and the other at Fikele to the north of Adrianople. The Turks had withdrawn behind the girdle of forts by October 21 and the investment of the western and northern faces of the fortress was begun.[6]

The I Army was kept well in hand and made to march slowly, ready at any moment to turn west and support the II Army. It did not meet with any serious resistance. The III Army, which started from a concentration area about four times as far from the frontier as that of the First, did not attempt to come im-

[5] D, p. 47.
[6] D, p. 47; E, pp. 63-67.

mediately into line. Its advance troops did not reach the frontier until the twenty-first. By the time the III Army had reached the vicinity of Kirk Kilissa, the investment of Adrianople was so far completed that the II Army could give active support to the Third. The line of the I and III Armies may be likened to a huge gate or door pivoted on the II Army in front of Adrianople and swinging toward Kirk Kilissa. On the twenty-second the movement was continued; but the Turks advanced at the same time with three corps to meet the invaders. As a result of the rencontre engagements that followed, the Turks were completely defeated and Kirk Kilissa was occupied by the III Army on the twenty-fourth. In support of the Turkish offensive movement two Turkish divisions advanced from Adrianople northeast to Kaipa where they were defeated by the 3rd Bulgarian Division and driven back to the city. Simultaneously six Turkish battalions attacked the 8th Division west and northwest of Adrianople and were repulsed without difficulty.[7] The 3rd Division closed in on Adrianople and began to cut off the exits on the east front of the fortress.[8]

THE FORTRESS OF ADRIANOPLE

Adrianople is situated at the confluence of the Tunja and Maritza rivers about 3 miles east of the junction of the Arda with the Maritza. It rests in a hollow, surrounded by hills on all sides, except on the southwest along the valley of the Arda. In appearance it is thoroughly oriental—a mass of mean, irregular, wooden buildings threaded by narrow, tortuous streets, with very few good buildings. It is a city of overhanging balconies, numerous many-colored bazaars, mosques, minarets, and cypress trees. The minarets were used by the Turks as observation posts during the siege. The city is of great religious and political importance as the second capital of Turkey. The inhabitants are a mixture of Turks, Greeks, and Bulgarians, with a smaller number of Jews and Armenians, the Turks being in the majority. In ordinary times the population is about 80,000; but during the siege it was increased to 100,000 by refugees. About 1¾ miles southwest, beyond the Maritza, is the wealthy Greek suburb of Kara-

[7]The English Consul at Adrainople states that 2,200 fortress artillerymen, withdrawn from the east front, were used for this attack. See 15,332, p. 2.

[8]D, pp. 42-84; E, pp. 63-67.

gach, which is connected with the city by a fine road with stone bridges over the Maritza and the Tunja. The railway station is in Karagach. The houses of this suburb are well built. To the north of Karagach, across the Maritza, is the poorer Greek suburb of Hederlik and about 1,000 yards farther north are the great Turkish barracks of Yanlik-Kashli.[9]

DIVISION OF THE FORTRESS INTO FORTS[10]

The fortress was divided into four fronts as follows:

1. The *Northwest Front,* extending from the left bank of the Maritza to the right bank of the Tunja. This front was divided into a west and a north section.

2. The *East Front,* extending from the left bank of the Tunja to the left bank of the Maritza south of the city. This front was divided into a north and an east section.

3. The *South Front,* extending from the right bank of the Maritza to the right bank of the Arda.

4. The *West Front,* extending from the left bank of the Arda to the right bank of the Maritza.

Generally speaking there were two lines of defense: (1) The advance works, and (2) the main line of forts. There was, in fact, a third line formed of a few old forts which had no influence on the defense and may therefore be disregarded.

The ridges which surround Adrianople form natural positions for defense. The outer slopes are generally gradual, those on the east front, which fall at angles from 25 to 30 degrees, being the steepest. The reverse slopes likewise are gradual and are completely hidden from outside observation. The confluence of the three rivers within the fortress was favorable to the defense, as, with plenty of bridges, troops could easily have been thrown from one front to another. The conditions were most unfavorable to the attack; for the rivers hindered communication between the various sectors of the attack, and the construction of crossings was difficult owing to the rapid currents and the width of the rivers, which in the rainy season overflow their banks and become raging torrents, quickly washing away light bridges. The separate hill masses, divided by the open and almost impassable river valleys, made it possible to organize separate defensive groups, well linked

[9] A, p. 410; Encyclopedia Brittanica, Article Adrianople.
[10] A, pp. 413-426; I, p. 33.

together by mutual fire support. A number of tumili, old graves, afforded good observation stations and the absence of vegetation and the gradual fall of the outward slopes (except on the east front) gave incomparable fields of fire. The soil is clay, easy to work and allowing very steep slopes in excavation. Engineer materials were abundant in the large city, with its groves, orchards, buildings, and railway plant. Taken all in all the conditions for defense were most ideal for a Massena or an Osman Pasha.

THE ADVANCE WORKS[11]

On each front there were one or more detached advance works built to deny certain positions to the enemy and keep him as far out as possible. These advance works were as follows:

On the *Northwest Front.* Uch Tepeler, 2,200 yards from the main line, consisting of groups of fire trenches and communication trenches with dugouts on the reverse slopes; Yenmekchi Keui and Kadin Keui 2,700 yards from the main line, consisting of groups of fire trenches and field batteries.

On the *East Front.* A line of six field works on what may be called the Maslak ridge 1,000 to 4,500 yards in advance of the main position in the following order: Maslak, Mal Tepe, Sapund Jilar, Eski Kumluk, Mezyar Tepe and Demir Kapu. These were half closed works and included rifle trenches of variable profiles, an indifferently constructed wire entanglement upon wooden stakes,[12] communication trenches, dugouts on the reverse slopes, and field batteries. They were separated from the main line by a continuous wire entanglement which proved fatal to the Turks in the final assaults.

On the *South Front.* Lines of trenches on the ridges known as Tokat Bair and Pamuk Sirti and in front of the village of Doujaros. All of these positions were strengthened during the siege by field works. The Turks held them for five months and they formed, strictly speaking, the main defensive position on this front. They were 5,500 to 7,000 yards in advance of the batteries which were too far to the rear to give them effective support. The Turks also held the hill of Kartal Tepe, but it was taken by the Bulgarians before the armistice, and was used by them as an observation station.

[11] A, pp. 413-426; I, p. 33.
[12] 22,352, p. 4.

On the *West Front*. A line of trenches for a regiment of infantry on a line of hills about 1,000 yards in front of the main position. These trenches were captured early in the siege; but the besiegers could not hold them.

The distance of the advance works from the center of the city varied from 4,900 to 13,600 yards. Hence the entire city was under artillery fire from the beginning of the siege.

THE MAIN LINE OF DEFENSE.[12]

The main line consisted of infantry redoubts, generally spoken of as forts, batteries, and trenches. It had a circumference of about 21½ miles. The forts had originally been intended for artillery and not for infantry. Some of them were in existence in 1829, when the Russians occupied Adrianople. They formed prominent landmarks, and their ditches and parapets, rounded by time, offered no obstacle to an infantry attack, and provided inadequate cover for the defenders. In line with the forts, or behind them, were the batteries. Some of the emplacements for the batteries were of modern construction with concrete casemates and revetments; while others were old earthworks. They were generally well concealed from view but few of them were far enough below the crest for flash defilade. The concrete was never over 16 inches thick and was insufficient to resist the fire of 5.9-inch guns.

The line of trenches between the forts was continuous around the perimeter. It was constructed mainly with a view to prevent the enemy from crossing the wire entanglement which completely surrounded the main line of defense. This entanglement was usually only a few yards from the trenches; but, in many places, it lay in dead ground. The trenches were generally well sited; they were for fire standing; but most of them were without head cover. In places they were pushed forward beyond the wire entanglement.

The wire entanglement was the only obstacle used by the Turks; but it was a serious obstacle. The height of the wire was usually about 3 feet. The posts were of iron, pointed and barbed. They were rigidly attached to an iron baseplate about 1 foot square, the whole length of the post being about 5 feet, of which 2 feet were under ground. The wire was attached rather loosely and the

[12] A, pp. 411-426; I, p. 33.

entanglement was between 24 and 30 feet wide. The continuous entanglement was a grave error. It precluded sorties, cut off the advance positions from support, and doomed the defense to complete passivity.

The *Northwest Front* was the strongest. It consisted of two forts, Eshil Tepe and Yasi Tepe, some rifle trenches and ten batteries on the extreme right, 4½ miles from the town; and three forts and twenty-seven batteries and rifle trenches along a low ridge on the left about 3½ miles from the city. In rear of the main line were three old forts and several batteries; and still farther to the rear, as a keep to the whole front, was old Fort Hederlik on a hill 1,600 yards from the town. Lieut.-Gen. Shukri Pasha with his staff lived in spacious brick barracks in Fort Hederlik near the wireless station which worked with Constantinople. Before the war the Turks and their German instructors regarded this front as the most liable to attack and the most important, probably on account of its proximity to the frontier and the railway. The sites of the fortified groups were well chosen; these groups were well linked together by their fire; the batteries were well placed; and the three advance positions were adequately supported by fire from the main position and in turn enfiladed the approaches to the forts in their rear and could have served as pivots of maneuver for the active action of the garrison. But the so-called forts were unfinished; they were deficient in all-around fire and all-around obstacles; and they had no ditch defense and no cover to protect the men from heavy artillery fire. They were unprovided with casemate protection of the intervals between themselves and they were unsuitable as rifle positions, as they were badly concealed and had narrow fronts, varying from 100 to 150 yards, and were of very limited area. Firing could not be maintained from them during a bombardment. They had concrete barracks which gave protection against 5.9-inch howitzer fire; but otherwise their military value was *nil*.

There was a certain number of permanent concrete emplacements on this front; but they were so poorly constructed that they could not withstand the effect of their own fire.

These defects were, in great part, redeemed by the infantry intrenchments which were of well chosen types, many being without parapets. They were well placed and were little damaged by artillery fire. The whole defensive strength of this front rested with

the infantry trenches; and it should be noted that this front held out to the last.

The main line on the *East Front* consisted of the following defenses: (1) Rifle trenches of full profile with a covered way behind the firing step and overhead protection against shrapnel along the Dertli-Mustafa height and from the Tunja to the Provadiiska. (2) A line of trenches 1,000 yards beyond the foregoing. (3) Thirty 10-pound automatic ground mines laid in a single line between the Tunja and the Provadiiska. (4) A considerable inundated area, made by damming the Provadiiska, covered by flanking trenches on low ground. (5) The Kurt Kaya group on a mass of hill 285 feet above the river, consisting of two forts with large brick barracks, rifle trenches, and a few batteries with temporary magazines on the reverse slopes of the hills. (6) Two old forts of the seventies about 3,200 yards in rear of the Kurt Kaya group. (7) Seven forts and twenty-one batteries and a limited number of trenches on a sharply marked north and south ridge with steep (25 to 30 degrees) outer slopes and a command of 330 to 400 feet over a good field of fire. The distance of this ridge from the city varied from 6,000 yards at its northern extremity to 1,800 yards at the southern extremity. At the north end it makes a right angle with the north section, which afforded facilities for enfilading which the Bulgarians did not neglect. There was some dead ground near the Provadiiska valley. The ridge afforded excellent concealed positions for artillery and screened the movements of reserves; but the position was sharply outlined along the crest, which facilitated the ranging of the hostile artillery. The forts in order from north to south were as follows: Aivas Baba, Ayi Yolu, Kestenilik, Kuru Chesme, Yildiz, Top Yolu, and Kavkaz. All of these forts were of old construction, remodeled in 1885 by adding brick casemates covered with 3 feet of brickwork and 4¾ feet of earth which was pierced by 4.7-inch shells. They are of interest because the fall of this line, penetrated first at Ayi Yolu, led to the fall of the fortress on March 26, 1913.[14] The rifle positions were on the glacis and covered ways and in the intervals between the forts.

[14]Many of the accounts place the fall of the fortress on March 26. There is a difference of one day for all dates in the various accounts, due apparently to an error in changing dates from old style to new. I have adopted dates given in the *Royal Engineers Journal* articles from June to October, 1914.

Some of the trenches were in advance of the wire entanglement which ran along the ridge in front of the forts. There was little protection from shrapnel. Some of the forts had ditches but they were not swept by fire and presented no obstacle to assault. All of them had 11½ feet ramparts, above which casemated traverses rose 4 feet. The average distance between the forts was 1,000 yards.

The batteries were between the forts and in line with them and in plain view from the front. Only two batteries, one of 5.9-inch howitzers of a new type and the other of mortars, were in concealed positions. Most of the large guns had overbank mountings. The emplacements were temporary, provided with corrugated iron splinter proofs which afforded protection against shrapnel. There were from 1,500 to 2,000 yards of dead space in front of the batteries on the ridge, so that they could not be used to oppose assault; and they were unsuited for engaging the well concealed batteries of the enemy.

The *South Front* was on ground that was generally level and open, except for copses and low jungle in the Maritza valley. The ground gradually rises from Karagach to the southwest, forming a low rolling plateau. Batteries placed in folds in the ground were concealed from view and it was difficult to get the range in the successive folds, even when the flashes of the guns were visible. The works on this front were as follows: (1) Fort Bosna Keui on the Maritza. (2) Fort Demirdesh, 2,000 yards westward. (3) Fort Karagach, 3,200 yards beyond. (4) Thence 1,000 yards to the northwest, Fort Marash on the Arda. (5) Batteries in permanent emplacements from 500 to 800 yards in front of the forts. It was the intention to protect these batteries with a new line of forts farther out; but they were not constructed when the siege began.

The main line on the *West Front* consisted of the following works: (1)A field work for one battalion on Papas Tepe consisting of fire trenches with fire in all directions, communication trenches, dugout shelters on the reverse slopes, and an all-around entanglement. (2)Two well concealed 4.7-inch howitzer batteries in rear of Papas Tepe.

The distance of the main line from the center of the city varied between 2,800 and 11,000 yards.

THE GARRISON OF ADRIANOPLE.[15]

The garrison in time of peace consisted of two divisions with auxiliary troops numbering altogether about 25,000 men. When the siege began the following units were in Adrianople: (1) The 10th and 11th Nizam Divisions, each of three 3-battalion regiments of about 3,000 men each, one rifle battalion and one field artillery regiment. Total, twenty battalions and forty-eight guns. (2) The 4th Rifle Regiment of four battalions. (3) The Adrianople, Baba Eski, and Gumurdjina Redif Divisions, aggregating thirty-four battalions and thirty-six guns. (4) The 12th and part of the 6th Cavalry regiments amounting to six squadrons. (5) Five fortress artillery regiments, five machine gun companies, and engineers. The entire garrison consisted of fifty-eight battalions with eighty-four field guns, five fortress artillery regiments, five machine gun companies, six squadrons, engineers, and subsidiary troops. The Bulgarians are reported to have captured 60,000 prisoners. Taking into account the casualties during the siege and the desertions which were considerable towards the end, the garrison must have numbered originally not less than 75,000 men.

The garrison was commanded by Shukri Pasha under whom Ismail Pasha served as fortress commander until the beginning of November when Ismail's duties as fortress commander ceased.

The training of the Turkish troops was bad. The Nizam Infantry had fired at a standing target only; the Redifs knew nothing of shooting and many had never seen a rifle. To reduce their shortcomings the parapet was shaped so that when the rifle was laid on it, the bullet would travel parallel to the ground in front. The Bulgarians admitted that this improved their adversaries' shooting, but the Turkish marksmanship was poor. The artillery fire, both field and heavy, was little better. The Turks knew not how to time their shrapnel, so that their shells burst high or on graze, and when they had once found the range, or believed that they had found it, they did not change it and often continued firing away at nothing. Only the Nizams knew how to use the spade and applied their knowledge in sorties.

The infantry was armed with the 30-caliber (7.65-mm.), 5-cartridge-clip Mauser with a long blade bayonet; but some of the infantry had the Henry-Martini rifle. The cavalry had the .37-

[15]A, p. 422; I, p. 36; G, p. 190; 22,354, p. 1.

caliber (9.5-mm), Mauser carbine, the rest of the troops being armed as infantry. The field artillery had the 3-inch (7.5-cm.) Krupp shielded quick firer. Of machine guns they had twenty Maxims and forty-five old Gatlings. The infantry carried a small shovel.

ARMAMENT OF THE FORTRESS.[16]

Besides the eighty-four 3-inch field guns, there were 239 3.4-inch (8.7-cm.), non-quick firing field guns; eighty-four 4.1-inch (10.5-cm.), 4.7-inch (12-cm.), and 5.9-inch (15-cm.) siege guns; seventy-eight 5.9-inch siege guns on overbank mountings with all-around fire; eighteen 5.9-inch, 7-inch (18-cm.), and 8.3-inch (21-cm.) mortars on overbank mountings; and seventy-two 5.9-inch, 7-inch, and 8.3-inch horsed howitzers. This accounts for 570 guns. There were over 600 guns in the fortress, chiefly Krupps. The 4.1-inch gun had the longest range—12,000 yards. The projectiles were common and high explosive shells and ordinary shrapnel. The Turks also had star shells, which, on burst, burnt from two to five seconds with a blue flame. Their ammunition was abundant so that they fired ten rounds to each Allied shot. The 4.1-inch guns were horsed and appeared with effect at important points. It is said that they did good work against aeroplanes. The Turks appear to have had two anti-airship guns.

COMMUNICATIONS.[17]

Roads and Railways. The fortress was well supplied with roads, especially on the Northwest Front. The provision was poorest on the East Front, where the Constantinople road and the road leading north were metalled only in places. The road between the forts on this front was unmetalled and ran in places in front of the crest. Unmetalled roads leading to advance positions became soft and difficult in the rainy season. There were a few motor trucks. A Decauville, narrow-gauge railway with circumferential and radial lines, well laid in folds in the ground and provided with five engines and 200 cars of various types, traversed the fortress.

Bridges. Between the Northwest and East fronts, there were two stone bridges across the Tunja within the city and two stone

[16] A, pp. 421-424; I, p. 36.
[17] A, p. 425.

and two wooden bridges north of Adrianople—six in all. Between the South Front and the Northwest and East Fronts there was a single stone bridge across the Maritza and the Tunja. The railway bridge, which was covered with a timber roadway, afforded communication between the South and West fronts. There was no direct communication between the West and Northwest fronts. The Turks had 118 iron pontons but made no use of them. Inadequate communication between the South and East fronts prevented an effective use of the reserves on the East Front in the final assault and led to disaster. There was generally a large crowd at the Karagach Bridge across the Maritza waiting to cross.[18]

Wireless and telephones. In Fort Hederlik there was, as previously stated, a wireless plant which communicated with Constantinople; also a telephone central station connected with underground cables with twenty-six important works. These works had, in addition, direct communication between each other by telephone and there were many field phones in use. The Turks made use of what appears to have been an Ardois system installed on the minarets of Sultan Selim Mosque which the Bulgarians tried in vain to destroy by artillery fire.[19]

FOOD SUPPLIES.

The fortress was abundantly supplied for a long siege, if the supplies had been properly handled, but the management was bad and long before the fall of the fortress and while there was still a large amount of food on hand, civilians and soldiers were starving and soldiers were being poisoned from eating weeds.[20] Fifteen thousand cattle and 50,000 sheep were driven into the fortress. The refugees brought in large numbers of animals. There was an immense public store of grain and the police in February discovered 50,000 bushels of wheat which was sufficient to last the garrison and population for forty days. By November all of the stores of salt, sugar, kerosene, hay, and firewood were exhausted. The need of salt, which is so easily stored, was earliest and most severely felt, in view of the great number of animals which were available for food. Many horses were killed for

[18] A, p. 425
[19] C, p. 171.
[20] C, pp. 208, 218.

want of forage and little use was made of the flesh as the Mohammedans will not eat it; but there was no reason why it should not have been utilized for the Christian population, who would have starved but for the efforts of the Russian consul in their behalf. There was an abundance of tobacco in the city but very few cigarette papers, which worked great hardship upon the Turkish soldiers.[21] There was an immense quantity of white cheese preserved in brine that had been stored in the fortress for more than three years. This formed one of the staple articles of the soldiers' diet.[22]

WATER SUPPLY.

The water supply came from the hills northeast of the city and was cut off very early in the siege. The Turks tried to install a pump on the banks of the Maritza, but with little success and the soldiers drank freely of the puddles and pools.[23]

HOSPITALS.

The hospital accommodations were totally inadequate to the demands. By utilizing school buildings ample housing was provided for the wounded but the number of wounded was so great that it was beyond the powers of the staff to deal with them. Many wounded lay for hours without attention even after their arrival at the hospitals, without bedding and in some cases without food and water. There was a very inadequate supply of hospital stores.[24]

THE BESIEGING ARMY.[25]

In addition to the II Bulgarian Army under Gen. Ivanof, the II Servian Army (two divisions) under Prince Alexander joined the Siege Army and was placed under the supreme command of Gen. Ivanof. In the early part of the siege the besieging forces consisted of eighty battalions of infantry, 250 field guns, 102 heavy guns, and eleven squadrons, or a total of 80,000 men. Later, when it was decided to assault the works, the Bulgarians were reinforced to 105,000 men with 342 guns, and the Servians

[21] A, p. 425; C. pp. 36, 48, 176, 179, 201.
[22] C, p. 206.
[23] A, p. 426; C, pp. 37, 62.
[24] 15,332, p. 11.
[25] I, p. 36; E. pp. 57-60; 22,354, p. 2.

to 47,000 men with ninety-eight guns, or a total of 152,000 men with 440 guns. Seasoned troops were sent, from time to time, to the Chatalja Army, and their places were taken by reserves. The Allied field artillery was armed with 3-inch quick-fire Schneider-Creusot guns, and 3-inch and 3.4-inch non-quick-fire Krupp guns, 4.7-inch Schneider-Creusot field howitzers, firing common shell, case, shrapnel, and high explosive shell. The Bulgarian siege artillery consisted of Schneider-Creusot 4.7-inch guns and 5.9-inch howitzers and Krupp 4.7-inch and 5.9-inch guns and 4.7-inch howitzers. The Servian siege artillery had new Schneider-Creusot 4.7-inch guns and 4.7-inch and 5.9-inch howitzers. The large Servian howitzers, eight in number, were the most powerful weapons of the Allies. Most of the siege artillery was fired from platforms of French pattern made of three cross ledgers on which were laid four ply of planks, but two of the 5.9 inch Bulgarian guns were fired from wheelways held together by transoms. The Allies exercised the most severe economy in the expenditure of ammunition, all of which, as well as all other supplies, was hauled by bulls and buffaloes from Mustafa Pasha. In this service 2,000 animals were killed.

The Bulgarians had two captive balloons and twenty-five aeroplanes, but for want of repair facilities they used only one balloon and six aeroplanes. The aeroplane park was at Mustafa Pasha. The captive balloons did effective work with the artillery. One observer was wounded by shrapnel and one airman was killed by a fall. The Bulgarians had six 24-inch and 36-inch searchlights which worked satisfactorily. One was disabled by a Turkish shell. Owing to frequent instances of damage done by their own troops, the Bulgarians found it necessary to have a double or duplicate network of telephone cable of which they used nearly 500 miles. The artillery and the infantry had separate telephone systems. The engineer park contained a thousand 9-pound French body-shields of 2-10 inch steel for the use of wire cutters. They gave the men courage, but as a matter of fact were useless at the short ranges where they were needed. The engineers of the Siege Army were commanded by Gen. Vasof of the Bulgarian Army who was made commandant on the front chosen for attack.

The headquarters of the II Bulgarian Army was established at Mustafa Pasha where it remained during the siege.

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(To be continued.)

Impressions of Service with the 2nd Division in Texas

By Colonel R. L. Bullard, 26th Infantry

II.

HAS the great war gone on long enough, relaxed its spell over us enough to allow us to turn our thoughts upon the small things of our own service? We must; they are our portion.

Impressions did not cease with the installment of a year ago.[1] Though here now two years and a half, we have not grown so stale or so callous that we can no longer receive them. Nay, rather our sensitiveness has been increased by the differing ideas and methods of changing commanders, and our impressions have been so numerous and so varied that no mental loose-leaf method can arrange them into a smooth-joined whole. There are "joggles" in the best line than can be made of them.

ORGANIZATION.

Twice have we seen even this undersized, incomplete division broken, and single brigades sent to service elsewhere. More times have we seen go past us or from us to the Mexican border, single brigades, single regiments, battalions, batteries or lesser detachments of other organized divisions, until there is more than a division upon that border serving all one purpose yet without common head or organization. These things suggest the query: Are we up to the largeness of the division organization that we now have? Do we know how to use it?

Military organization has been reached through hundreds of years of development and by thousands of commanders. It is tremendously adaptable. It is pre-eminently an organization for execution, for the execution of anything. In the 2nd Division we have learned this. Using it whether for work or for play, on duty or off, we have done well: rejecting it, we have failed. When will our people's prejudice allow them to learn its value?

[1] "Impressions of Service with the 2nd Division in Texas," INFANTRY JOURNAL, November-December, 1914.

FIELD UNIFORM AND EQUIPMENT.

Consensus of opinion of old officers and men, "The best we have ever had." Exceptions are so rare and unimportant that to name them would appear trifling or else merely to have something to criticise. For the infantry, however, be it said, two things we have that we would joyfully part with, our "cuff" leggings and the company flags. The company flags, oh, the company flags with their cryptic significance of red and white and blue and square and diagonal! which no one can ever recall except by painfully working out seriatim, every time he sees one of these flags, all the permutations, arrangements and combinations of which the three colors and five figures are together capable. By the time he has done this, the message is lost. No use that has been made of these flags by the Infantry of the 2nd Division in camp or maneuver during the past two years, no use that I have ever seen made of them since their adoption, no use that I have ever known an infantryman to imagine for them would seem to justify or compensate for their cost and the trouble of their provision, care and carrying, however small these last. Besides, flag signalling with line troops, at least in the last thirty years, has been—to laugh.

All arms from field and maneuver hail the return of our old friend, the camp kettle, and the Infantry of a shelter tent that really shelters and does not besides disarm.

SUPPLY.

"The prime immediate need of the Army," says G. O. No. 17, W. D., 1913, "is correct tactical training of officers and noncommissioned officers in handling commands appropriate to their rank." Is it? Is it? Before our tactical training comes supply. First of all men must live. Regularly, whether in peace or in war, supply exacts most in knowledge, labor and paints. It is thus the first, "the prime immediate need" of any army. Tactics come long, long after. They are not first but third or fourth. Without supply first an armed force cannot even begin to touch its duties and purposes. If you doubt it, imagine yourself the top officer and begin, only begin, to plan any military operation, nay, even mere military existence, and you bump your head hard first against supply and you keep bumping it against the same thing

to the very end. I raised and commanded two volunteer regiments in the Spanish American and Philippine Wars. Without knowledge of supply I couldn't have gone on for a day: with the idea that tactics were first, it would have been the same thing—I couldn't have gone on for a day.

To this subject, its difficulty and importance we have recently had our attention called in the 2nd Division by extended field exercises and maneuvers calling for some foresight, knowledge and practice in supply. We were supplied and beautifully supplied; but who did it? The few specialists among us—no others. The very fact that the conditions of the maneuvers exempted (as they did) these specialists and their arrangements from anything but constructive capture, showed in authority the conviction that there were few if any more among us competent to take hold of and continue the supply if it were broken. The general, the tactician, the engineer, the signal officer, even the doctor could be gobbled up by the enemy and "they never would be missed"; but the supply officer! No, sir; you must let him alone! And the like has been done in other maneuvers that I have seen. This shows where "the prime immediate need" is really felt. Let's remedy it, Mr. Authority, let us have more officers and men who know the ways and means of supply, their conduct and direction. Up to now experience has been the supply officer's only teacher. We are ready to admit that experience is the best teacher, but experience cannot be had for all who need to know this first of all the branches of the art of war. Experience, indeed, is no longer regarded as essential in learning quite well any branch of the art of war; schools today take its place. We have a School of the Line, an Engineer School, a Signal School, an Artillery School, a Medical School, schools for everything except a School of Supply, the most essential of all. Let us have one and let it spread its instruction wide among us as do the others. The subject is big, it is enormous, it is of the first importance.

ADMINISTRATION.

The service roll calls of reveille and retreat seem ripe to go the way of the check at taps. Without them duty in camp and quarters would seem already to afford conditions of supervision sufficiently close to meet all the demands of discipline and good service. In the 2nd Division organizations that required the last

man to attend these formations seemed no more ready or better prepared for succeeding duties than others far less exacting.

Boards of officers are ponderous, slow, inconclusive things. Argumentatively (if I may be permitted for a moment to lay aside impression for argument) in the first place, except in jury-like cases, cases involving personal rights, boards would from their very nature seem inappropriate to military administration which operates under one head. In the second place, matters and questions submitted to them are likely to be lost, swallowed up forever in the maw of doubt and consideration. Look; if it be not so found, it will be in the main because of the final guidance and direction of a driving convening authority that might have decided the matter in the beginning. "A board," said a witty one among us, "is a long, flat, wooden thing."

INSTRUCTION AND TRAINING.

Garrison training and field training, soldier-making and troop-making—a large subject yet not so long as, under the unfavoring conditions of garrison life, we, or at least many of us, came a few years ago to think and assert. The 2nd Division has remarked the quick disappearance of the recruit. Today we see him; in a little while we can no more pick him out—he has soaked up training from all about him and is changed. Time? Fifty years ago Federals and Confederates took nine months—Bull Run to Yorktown; today Kitchener takes no more—August to May. Enough is our impression, if the prime immediate need, supply, is met as in the 2nd Division it has been met.

Our service is ever becoming more practical. Yet I would not assert that we have shed all the frills and non-utilities of soldier-making. Formal guard duty, that relic of the time of Julius Caesar, of short swords and of hostile camps entrenched within a few rods of each other, remains with us; also the persistent training of all hands in individual cooking (how we pride ourselves upon it!), never to be used again.

But the nine months postulated for training are nine months of full, not half work. This in the 2nd Division we have had for some long time.

A few years ago an accident for some two weeks completely put out of use my right arm. I found that my left was worth practically nothing to me; I had never used, never learned to use

it. Since then from observation the conviction has grown upon me that I, and we all probably never use more than half our mental or physical powers. Our present division commander must have reached a like conclusion; he last fall ordered a garrison and also a field training period, a year's work, in six months! We did it, growling perhaps, some of us, a little, but all survive it now, proud and sure that we can do, that we have learned how to do, a lot more than we thought we could. How was it accomplished? By program and schedule prepared beforehand and brought down to day, hour and almost minute for every detail. We wrote, we swore, we sweated; but it's easy now. The camp inertia of study was overcome, the "Impossible" of doubt pushed aside by the "You will" of authority—the right way. Rightly says Emerson, "Our chief want in life is somebody who shall make us do what we can."

And that bring us to the infantry pack. A year ago and after more than a year of camp and maneuver with the 2nd Division I wrote,[2] "A query still: will the United States soldier carry a pack?" It is a query no more. He will. By a system of field training and exercises last season instituted by our division commander it has been induced insensibly, without complaint or even comment, and fully demonstrated by the fact. It is a veritable triumph. It is accomplishment enough if nothing else had been done in the whole camp. It carries hope for the crisis of war. If our soldiers will do it in peace, in the mere play of war, be sure (and in our country and our time we have not been sure) that he will do it in the reality of war. Hail to the knowledge and to the man! If an American soldier will carry a pack, there's nothing that he will not do.

At the end of the just-passed season of practical training came formal and detailed tests instituted by the division commander for every man and every organization in the last thing that he and it had done in the season's time. The matters of test were in general stated in writing in the form of tactical problems and handed for practical solution to the person or the commander of the organization undergoing test. By the time the tests were finished the conviction was upon all that they were not only a real way of arriving at a knowledge of the state of instruction attained but

[2] "Impressions of Service with the 2nd Division in Texas," INFANTRY JOURNAL, November-December, 1914.

were themselves our best instruction. I write it reluctantly: I filled a whole note book a little while ago, arguing the other way.

Following the tests and as a fit culmination of the year's instruction came for the whole division ten days of maneuvers of the class known as "controlled." It was no maneuver camp where one goes out to a tactical exercise for the day and returns to a nice established camp for the night, but the simulation of a campaign continuous day and night for the whole period, an actual taking of the field by two opposing forces of all arms, each with its mission, its base, its line of communications, its supply and field trains managed by itself, its field equipment and its field allowance of baggage and tentage. The field was open: there was no "off limits"; control by the director was limited to making sure of the instruction aimed at without overstrain. We took the weather, the country and its condition and means of communication as we found them at the time, thereby saving strain upon the imagination. We used the telephone, telegraph and railroad lines, adding greatly to the semblance of reality. Impression: the closest simulation of a real campaign that I have ever seem. In it personal characteristics loomed and judgments of men were easy—proof enough of the value of the maneuvers.

MISCELLANEOUS.

The direct good of serving and working together of all the troops of the division needs no dwelling on. They are, briefly, advanced training and the opportunity to try devices and ideas.

By-products of service, not technical nor weighty enough to strain the mind, may be of interest:

The division has passed through and recovered from two or three periods of staleness. Its propulsion of rumors is of the past. Only new arrivals notice them; the old hands smile indulgently as at a child with a toy. A wider interest, extending even into the infantry, in that enlivening and inspiring thing—the horse. Polo has taken hold. A rising interest in fencing with sabre and bayonet, not sport but training. The infantry has held on to its bayonet and the cavalry its sabre. Does either know how to use its weapon? "Miserable massacres," a Frenchman would say. This year sees in the 2d Division the first fencing competition ever held in the Army.

The Internment of Mexican Troops in 1914.

By Capt. George H. Estes, 20th Infantry.

AS SOON as they began to understand that their stay might be prolonged, applications for release began to pour in to the officials in charge of the camp.

Claims as noncombatants were filed by many as grounds for release, others claimed immunity from confinement under The Hague Convention, still others, who had been arrested in El Paso, claimed never to have been at Ojinaga and to have been in United States territory of their own free will.

It was determined that all such claims should be decided on their individual merits and the evidence in each case; if they were civilians who had been arrested by mistake that they should be released.

In regard to paymasters and musicians, who claimed to be noncombatants, if they were members of Gen. Mercado's force at Ojinaga, they were to be held.

The women and children were held solely as an act of charity, and because it was assumed that such action was desired by all concerned. They could be discharged whenever they so desired, but before doing so, the immigration and local health authorities were to be notified for such action as they might desire to take.

In the cases of those claiming to be civilians, who had merely attached themselves to Gen. Mercado's column, the War Department uniformly held that all of the men who surrendered with Gen. Mercado at Presidio must be assumed to be members of his force, and all must be treated alike; this was held even to apply to those men who by reason of loss of limb or other disability could not possibly be subject to military duty.

Among the women and children who had crossed to the United States were many who had lost husbands and fathers, and were unattached to any male member of the command. An attempt to dispose of these met with little success; at one time the Mexican Consul at El Paso offered to transport all unattached women

Continued from INFANTRY JOURNAL, May-June, 1915.

and children to Piedras Negras, Mex., but it was not done, and as none could comply with the requirements of our immigration laws for release into the United States, it was necessary to hold them. They were segregated in a portion of the camp set aside for that purpose, but continued to be a thorn in the flesh of those in charge until their final return to their native country.

The claim for release of the members of the medical personnel of the Mexican forces involved their rights under The Hague Convention.

On February 2, 1914, the senior medical officer of the interned forces requested the release of himself and other officers and men comprising the Sanitary Troops, viz: two officers and twenty-four enlisted men. This request was presented to the Secretary of War by the Chargé d'Affaires of Mexico, at Washington.

The request raised the question as to whether these men might properly claim release from their detention.

In the "Rules of Land Warfare," published for the guidance of the land forces of the United States, it is stated: "The Medical Personnel belonging to belligerent forces who have sought asylumn and are interned under The Hague Convention, can be released by the Neutral and permitted to return to their own state or army. The neutral state may retain the necessary medical personnel and matériel for the care of the sick and wounded left in its care."

It would appear a valid claim for release would lie when the assistance of the interned medical personnel was no longer indispensable for the care of the sick and wounded.

It appears, however, in this same work, that the neutral power has the indisputable right to lay down the conditions upon which they may enter. As previously noted in the case of large bodies of troops, it is usual for the commander and a representative of the neutral power to draw up a convention in which the exact conditions are fixed and recorded. It was also noted in this case that the Mexican Federal commander did not ask permission of the neutral power before taking refuge in its territory; nor did he give any opportunity for the drawing up of a convention to fix the conditions under which he and his troops were to be admitted.

It is stated in "Land Warfare," published for the guidance of officers of the British service: "The Geneva Convention applies

to sick and wounded interned in neutral territory. The position of the medical personnel with them is regulated by the conditions under which it was admitted. Failing a special arrangement, the neutral state would be justified in detaining a sufficient number of men of the medical personnel to take care of the sick and wounded."

In view of the fact that at the time of the application there were many Mexican sick and wounded under treatment in the camp, the Secretary of War decided that the claimants would be held until such time as their services could be properly dispensed with, and they were so notified.

The authorities decided that their services could be dispensed with in May, 1914, and on the twenty-seventh of that month, the Secretary of War directed their release, together with their families.

At this time but one could muster sufficient funds to pass the immigration requirements; and it was not until August 28, 1914, that the last member of the sanitary personnel was able to take his release into the United States. It was necessary that these men be released into the United States and not returned to Mexico, as by this time their enemies had gained control of the entire northern Mexican border, and they were afraid to cross into that territory.

When Gen. Mercado and his command crossed into United States territory, officers and men alike had not received regular pay for three months, and were practically without funds. It was thought it might be possible to make use of the services of the men on private work, utilizing those volunteering and desiring to work, and granting them compensation for their labor; but volunteers and opportunities were alike lacking, so that the scheme came to naught. Later numerous requests from individuals desiring the services of Mexicans were received, and the specifications of help needed, varied from day laborers to clear land, or pick cotton, through domestic servants of all classes, to children for adoption into American families.

It was found impracticable to comply with any of these requests.

As a matter of fact, after being half starved, ill clad, and

without a roof to cover them for months, the Mexicans looked upon their prison camp at first as a haven of refuge.

On February 17, 1914, application for pay for the Mexican officers was made under the claimed provisions of The Hague Convention, which state: "Officers taken prisoner shall receive the same rate of pay as officers of corresponding rank in the country where they are detained, the amount to be ultimately refunded by their own Government."

Of course, the officers were not prisoners of war as contemplated in the article cited, and, further, the pay of the interned would have put a premium on prison life that would have stretched the capacity of the stockade in caring for applicants.

The matter was settled on March 4, 1914, by the War Department stating that after consulting with the Department of State, nothing could be done toward granting pay to any Federal officers of the Mexican Army interned in the United States.

Having considered the more important of the questions arising in connection with the detention of the Mexicans, a survey of the practical methods of their actual care and maintenance will now be undertaken. This involves a consideration of the questions of food, clothing, shelter, sanitation, discipline and punishment, vital statistics, labor, exercise, and amusements, for here was a complete little city of 5,000-odd souls, with all the variety of characteristics, morals, desires, and opinions found in such an aggregation of men, women and children.

With reference to the kind, quantity and quality of food supplied, it was determined to furnish, as far as practicable, articles of subsistence to which the Mexicans were accustomed. At first, as a basis to work on, it was decided that the following ration would be appropriate for the purpose:

Beef, fresh, 12 ounces Bacon, 8 ounces	issued in the proportion of 70 per cent. beef and 30 per cent. bacon.
Flour, 18 ounces Rice, 4 ounces Beans, 6 ounces	issued in proportion of one-half rice and one-half beans.
Potatoes, 6 ounces Onions, 6 ounces	issued in the proportion of one-half potatoes and one-half onions.

Coffee, 2 ounces
Sugar, 4 ounces
Vinegar, .04 gills
Salt, .64 ounces
Dried Chili Peppers, 3 ounces
Lard, 2 ounces
Milk, evaporated, 2 ounces
Prunes, 1 ounce

With the above as a basis, this ration cost at El Paso, approximately 18½ cents.

The cost of the ration for the American soldier at this time, was 24.82 cents at El Paso.

Eighteen and one-half cents appeared a liberal amount, and was adopted as the allowance per person, per day, for the Mexicans interned at Fort Bliss, Tex., and Fort Rosecrans, Cal.

It developed that this amount was more than ample to give the Mexicans all they desired.

For a time issues in kind and to the amounts given in the table, were made, but it was soon discovered that variations in this allowance would be necessary, so that instead of these items there were substituted articles generally considered more desirable by the Mexicans, the limit of cost being fixed at 18½ cents.

This enabled the Mexicans to be supplied with frijoles, whole corn, fresh vegetables, fresh fruits, smoking tobacco and papers for the inevitable cigarettes.

Fresh bread was supplied from a commercial bakery in El Paso, to the Mexicans at Fort Bliss, at a cost of 3¾ cents per pound, delivered by the baker's auto-trucks daily; the bread being carefully protected from dust by suitable covering.

In order to handle the whole corn, and to enable the Mexicans to make up from corn-meal the tortillas to which they are so attached, thirty-six hand power corn-grinders were purchased, installed in two groups, one on each side of camp, and placed under charge of competent Mexican officers. These mills were in constant use from morning until night, and eventually resulted in complete substitutions of corn for any other issue of flour or bread, at a considerable saving to their mess fund.

Purchases for the messes were made as far as practicable from the Depot Quartermaster, El Paso, Tex.; articles not obtained from that source were secured locally from the lowest informal bidder.

After the Mexicans were transferred to Fort Wingate, N. Mex., this same method was pursued.

Beef was shipped to Fort Wingate in refrigerator cars, and issues were made daily from the cars.

In this connection, it may be stated that freshly killed beef and goat meat would have been more satisfactory to the Mexicans, but neither was available at Fort Wingate.

All items, the consumption of which justified it, were purchased in car-load lots.

Bread was supplied at Fort Wingate by two sections of a Field Bakery company (six ovens) operated by students from the Army School for Bakers and Cooks. Later two of these field ovens were operated successfully by Mexican bakers, selected from the camp and trained by the noncommissioned officer in charge of the field bakery.

To distribute the ration to those entitled to same, and to make requisition for the amounts and variety of stores needed, the policy of utilizing the Mexican officers was followed as far as practicable.

Accounts were opened for the following messes:

The Regulars—which included all officers, men and their families.

The Volunteers—men, women and children.

The Hospital—the sick and attendants.

The General Officers and Staffs.

A Mexican officer was in charge of the distribution of rations to each mess named. Each morning he handed to the United States Supply Officer a memorandum of his needs for the next day; he received, checked and issued his rations for the current day.

This issue to the Regulars and Volunteers was quite an undertaking as, in the former, there averaged 2,950 souls and in the latter, 1,900.

Issues were made by the Regular and Volunteer supply officers to the officers in charge of the company, troop and battery organizations, and by these to the heads of families, where the officer or soldier had such, and to the individual bachelors, except where several of these were organized into small groups for messing, as was usually the case, with some woman cooking for the group.

This was the method to which these troops had been accustomed, and it operated satisfactorily and without confusion.

To prepare their food, the greatest ingenuity was exhibited in the construction of stoves dug out in the ground, ovens built of adobe, and ranges fashioned out of oil cans, with serviceable stovepipe constructed of discarded tomato cans. Cooking utensils were practically non-existent and never of a very practical or uniform type. The suddenness of the abandonment of the position at Ojinaga caused even the few that the soldiers had to be forgotten and left behind. However, with the old utensils sent from Army posts, supplemented by tin cans, pieces of sheet-iron, etc., it was a matter of only a few days until the various kitchens throughout camp were sufficiently equipped to prepare the various food supplies issued.

For the sick and wounded, more complete arrangements were necessary. Army field ranges were supplied, with their usual complement of cooking utensils, for the preparation of food, and the American soldier's individual mess-kit, consisting of meat can, tin cup, knife, fork and spoon, was issued to each person confined to the hospital.

As stated, the allowance of 18½ cents per day per person was found to be more than sufficient to supply these Mexicans with subsistence; 17 cents would have been sufficient, as shown by the large balance left in the hands of the Camp Supply Officer, on the breaking up of the camp, which reverted to the United States.

Other supplies than subsistence, regularly issued, were soap, candles, matches, and toilet paper, fuel, crude oil for burning out latrines, and straw for bedding.

Each person was required to have a bed-sack filled with straw, which was emptied out, burned, and replaced by new every two weeks.

Wood for fuel was issued daily, at the rate of sixteen cords to one hundred individuals up to May 1; and during the summer, eight cords.

The method of issuing wood, straw, etc., was the same as that used for rations, the final distribution to individuals being made by Mexican officers.

To illustrate the variety of food supplied to the Mexicans, an examination of issue slips shows that in addition to the staples, fresh beef, bacon, flour, potatoes, rice, beans, onions, coffee and sugar, there was furnished from time to time, green chili peppers, beets, carrots, parsnips, cucumbers, cabbage, tomatoes, water-

melons, apples, pepper sauce, milk, turnips, dried chili peppers, pie fruit, and lime to use with the corn.

The corn is soaked in lime-water before being ground, preparatory to use as meal, and is run through the grinder while still soft and wet.

Lard substitute was a popular article of diet, and pilot or hard bread, furnished those undergoing punishment, an unpopular one.

The average daily cost of supplying the camp was: For rations, $900; wood, $168; straw, $26; crude oil, $11.50; water and light, $30.

This was a total daily regular charge of approximately $1,135 to keep the machinery in motion.

This does not include the upkeep of transportation, the pay of the men who were on duty solely with the Mexican camp, nor depreciation of various supplies issued for use in camp.

The matter of supplying clothing to those interned received immediate attention on their arrival at Fort Bliss, as many men, women and children were in a condition bordering on nakedness when they reached there.

The Mexican Consul, representing the de facto government in Mexico, presented a certain amount of clothing to the officers and men shortly after their arrival.

He could give no assistance to the women and children, who, as a matter of fact, were in more need of attention than the men. Fortunately, about this time, as a result of press accounts of the Mexican camp being in general circulation, gifts of clothing began to pour in from charitable individuals and societies in all sections of the United States, and in sufficient quantity and variety to enable all those most urgently in need to be supplied.

In May, 1914, additional clothing for the women and children was purchased, by direction of the department commander, from the Congressional Appropriation for the Maintenance of the Interned Mexicans. In July and September, 1914, further issues were made from the same source. The total cost was $4,621.75.

As an act of charity, money was never expended for a more worthy object.

The clothing issued officers and men by the Mexican Consul, was not sufficient for all, and by June, 1914, clothing for those not previously supplied had become a pressing necessity.

Urgent requests on the Mexican Consul, El Paso, were without

result, and it became necessary to call upon the United States Government to supply the clothing needed.

The Depot Quartermaster, El Paso, Tex., was instructed to purchase clothing for officers and enlisted men and the purchases were made at a cost of $9,471.65.

Later, further issues were made, when it was finally determined to return the prisoners to Mexico. The last issue completely equipped the officers and men to leave the custody of the United States, presenting a clean, neat, and respectable appearance.

This last issue was at a cost of $12,000.00, and consisted of the following, for officers:

67 civilian suits.
75 hats.
73 pairs shoes.
60 undershirts.

and for the men:

1600 coats, blue denim.
1600 trousers, blue denim.
2050 suits underwear.
2638 pairs shoes.
2600 hats, cowboy pattern.

It was noted, however, that when the Mexicans boarded the trains for return to their native land on their release, they invariably wore their oldest clothes, their new ones being carefully packed in their baggage.

A small body of Constitutionalist soldiers, which came to be interned after the Federals, were well clothed when they arrived at Fort Bliss, Tex., and their needs were supplied from time to time by the Constitutionalist agent, El Paso, Tex.

In providing shelter for the Mexicans, various patterns of tents were utilized; single tents were assigned to families, the size of the tent depending on the size of the family. Bachelors were assigned to tents in groups of from three to ten, depending on the size of the tents.

Organizations were quartered together in streets of uniform length, and arranged in parallel equidistant rows.

The kitchens for each group messing together were placed just outside the tents, and the necessity for providing cover for these in inclement weather soon developed a thriving industry in adobe construction.

A plot of ground was set aside for the manufacture of adobe

brick and the individual Mexicans were authorized and encouraged to make up brick and construct kitchens. It furnished a profitable as well as needed exercise for those who otherwise would have been idle.

The locations of all the adobe structures were, in all cases, fixed by the police officer of the camp prior to commencement of work. After the Mexicans were transferred to Fort Wingate, N. Mex., and their tents began to wear out and become unserviceable, the adobe construction was extended to include huts for dwellings.

MEXICAN OFFICER'S ADOBE HOUSE.

Adobe quarters of convenient and ample size for comfortably housing the families of general officers were constructed about a plaza laid out for that purpose.

Many displayed artistic ingenuity in the exterior decoration and interior arrangements of these homes.

The substitution of the adobe huts for tents, as the latter became unserviceable, was decided not to be satisfactory for the entire camp in case the Mexicans should spend the winter at Fort Wingate, where it is very cold during that season. The huts would be small and without sufficient ventilation after the cooler weather should set in and the occupants confine themselves for much of the time to these shelters.

It was therefore decided to adopt a standard type of adobe

barrack, the construction of which would provide ample accommodations and ventilation.

The plan approved was a continuous type of hut, built normal to the main avenue of the camp, with the inner end, the one abutting on the main street, constructed first; the outer end was left stepped so that construction to that flank could be continued as accommodations were needed.

Floors were of packed clay, and raised six inches above the natural surface of the ground.

This, by the way, is reversing the Mexican custom of house building, for invariably the floors of their adobe houses are from one to three feet below the ground level.

Each room was provided with a fire-place and chimney, one door, 6 feet by 2 feet 6 inches; and one window, 18 by 18 inches.

All huts faced south, and the distance between rows was 30 feet.

Small lean-to structures for kitchens were placed in front of the dormitories, as required.

The construction of the barracks had just commenced when the Mexicans were released and returned to Mexico.

Upon the abandonment of the camp, all tentage that had been used as shelter by the Mexicans was condemned, to prevent its future use by United States troops, and stored for future use in detention camps, should the necessity arise for same.

Sanitary measures taken involved not only care in quartering those held in camp, but also all preventive steps to avoid disease, and medical attention and care to return to duty, as early as practicable, those wounded or sick.

The administration of the vaccination and typhoid prophylaxis, as a preventive measure, was re-enforced by the strictest regulations relating to the general cleanliness of tents, shelters, and persons.

The police officer of the camp, assisted by United States noncommissioned officers, was charged with the enforcement of these regulations.

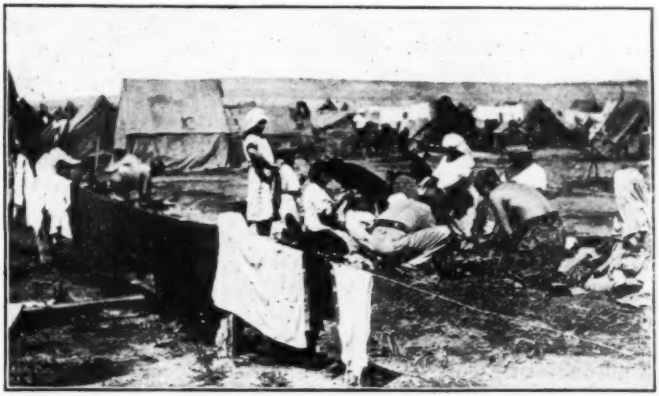
His distribution of labor put two noncommissioned officers on duty in each half of the camp; that is to say, two with the Regulars, and two with the Irregulars.

These men were on duty constantly, and saw that their sections were properly supplied with fuel and straw, that tents were cleaned every morning, streets swept, trash placed at the desig-

nated points to be hauled away later by wagons; that the toilets placed about the camp were used, and that all refuse from the kitchens was burned at the kitchens themselves.

This obviated the use of garbage cans which are the natural breeding places for flies.

These police noncommissioned officers also required clothes to be washed at the places provided for that purpose, and bath houses to be utilized in the interest of personal cleanliness. They required conservation of the water and kept the drainage ditches clear of obstructions.



WASH DAY.

These men also exercised general supervision over the behavior of their sections, and were in charge of any general work looking to the improvement in appearance, comfort, or convenience of their respective portions of the camp.

Once a week tents were raised, and the interiors exposed to the sun and air for several hours.

All refuse was collected twice each day and burned in incinerators constructed for that purpose, one for each section of camp. These incinerators were built of adobe brick and served their purpose well. In general terms, they consisted of a refuse chamber with a fire-box underneath, heat passed up through the rear end of the fire-box, over and through the refuse and out the chimney. The heat developed was sufficient to consume everything in the upper chamber.

In line with other sanitary measures, a bath house, in which 100 showers were installed, provided with hot and cold water, was early placed at the disposition of the Mexicans. The service of the bath house was regulated by the assignment of certain hours each day for its use by officers, by enlisted men, and by women and children, respectively.

It proved a popular institution and was in use practically twenty-four hours each day.

Latrines of various types were tried out; the greatest source of trouble, however, was not with the type used, but in securing the proper use of any type.

These closets were conveniently placed upon every side of camp, near the stockade fence, were screened from view by board fences and marked plainly on the outside for whose use they were intended, officers, men, and women, respectively.

As a result of experience, the most satisfactory type, and the one finally used exclusively, consisted of a narrow deep trench, as deep as fifteen feet in the hard clayey soil, covered at the top with a platform flush with the ground, with an opening in the platform one foot wide, running longitudinally with the trench, which was usually about fifteen feet long. The depth of the trench and the cover kept the interior practically in darkness, and as a further precaution against flies, etc., these trenches were daily burned out with crude oil and straw, the platforms scrubbed with water, and crude oil and lime sprinkled about the top of the trench.

This system prevented flies breeding in such places, and its effectiveness was proven by the fact that none of the usual camp diseases ever appeared.

To secure proper use of the latrines a Mexican guard was maintained over them from daylight until 11 o'clock p. m., daily.

The water supplied the camp was from deep wells of the El Paso City supply source, and was excellent in quality and ample in quantity.

At Fort Wingate, N. Mex., water was led in underground piping, from a large spring to the various sections of camp.

The food supply was regulated by actual issues of substantial articles of good quality, and by prohibiting any peddlers, fruit venders, or others with food supplies for sale, from entering camp or transacting business with the interned Mexicans.

A cooperative store within the limits of the camp, operated by United States officials, offered for sale milk, fruits, ice cream, and other such items of healthful quality, at a minimum price.

For washing clothing, certain places were set aside, where tubs or half barrels were provided, or where those so desiring could bring their own laundering appliances.

All waste water was collected in one open drain leading out of the camp inclosure.

After morning inspection, clothing could be hung up to dry on ropes strung in the company streets. This appeared a necessary evil, as theft of clothing not guarded was a common misdemeanor, and the thrifty housewife who hung her clothes in front of her tent could keep an eye on them while preparing meals and attending to other household duties.

As previously stated, cases of suspected smallpox were promptly removed to the isolation camp, and the same method was pursued with respect to chickenpox, the only other type of contagious or infectious disease that appeared.

Of course, in a gathering of the size of this camp, a certain amount of sickness was a natural condition.

To provide and care for the sick and for the wounded brought from Marfa, complete field hospital accommodations were provided inside the stockade inclosure. Officers of the United States Medical Corps, with enlisted men of the Hospital Corps, assisted by the Mexican Sanitary Troops, were charged with the successful fulfillment of this important duty. Sick call was held twice daily, when those requiring the services of a doctor appeared at the dispensary and received the necessary examination and treatment by a medical officer.

Officers of the Mexican Sanitary Service made daily inspections through camp to locate any sick who from diffidence or other cause failed to report at the dispensary for treatment.

The hospital was equipped for minor surgical operations, and for major cases, the use and equipment of the Army Hospital at the post of Fort Bliss was placed at the disposal of the camp surgeons. Fortunately, the cases requiring transfer to the Fort Bliss hospital were very rare, most of the surgical cases being successfully cared for at the camp hospital.

Medical attention was furnished, at first, by nine officers and twenty-four enlisted men. These were gradually relieved as their

service could be spared, until reduced to the normal of three officers and eight men, which was reached in April.

The first weekly hospital report in January, 1914, showed forty-six medical, seventy-seven surgical and four isolation cases in the hospital; and during the week there had been 419 surgical dressings applied on patients out of the hospital, and sixty-three medical cases treated not in the camp. The last weekly report, submitted in September, 1914, before the release of the Mexicans shows no surgical, one medical, and no isolation cases in the hospital; ninety-two surgical dressings on out patients, and 162 cases of medical treatment of out patients.

By far, the largest percentage of sickness and disability was due to venereal disease in some form. It is believed fully 80 per cent. of those interned were infected with one form or another.

As fast as the wounded recovered, they returned to duty with their organizations in camp. A few of the wounded died, but a remarkably high percentage recovered, considering the seriousness of some of the wounds.

Deaths and births occurred, as might have been expected in a mixed group of this size. In all, twenty-eight children were born in the camp, and there were 101 deaths. An analysis of causes of deaths follows: 25 tuberculosis, 17 gastro-enteritis, 9 bronchopneumonia, 9 still-born, 7 heart disease, 7 gun-shot wounds, 6 congenital debility, 5 syphilis, 5 dementia praecox, 5 smallpox, 4 Bright's disease, 1 pellegra, 1 cancer.

While the Mexicans were at Fort Bliss, the remains of all who died were turned over to the Mexican Consul for interment, but after arrival at Fort Wingate, N. Mex., those who died were buried in the Post Cemetery, each grave being marked with a neat head board, on which was painted the name of the deceased, with his rank and organization in the case of soldiers, and the age and date of death in all cases.

In addition, there was buried in the coffin with each body, a sealed bottle, containing the name of the deceased, with rank, organization, and date and place of death, for future identification, if desired.

In every case, a neat coffin was provided at the expense of the United States Government, and in the case of officers, military

honors in conformity with the rank and grade of the deceased were rendered.

Of course, no sanitary measures or police regulations could be carried out without some disciplinary methods of enforcing them, so that one of the first acts on organizing the camp was to build up a system of rewards and punishments with which to properly control the camp and secure the end desired.

The Mexican *preboste,* or provost marshal, handled all cases arising between Mexicans, his disciplinary punishments, subject to approval by the executive officer, being limited to confinement in the punishment pen for not to exceed thirty days, awarding extra tours of duty with working parties, and deprivation of privileges in camp. Flogging, hanging by the thumbs, tying to a stake and other forms of unusual punishments, practiced in the Mexican service, were not tolerated.

Furthermore, the right of appeal to the executive officer was made known to all, and of this advantage was frequently taken.

Every morning, the Mexican *preboste,* after holding his court, sent to the executive officer of the camp a record, showing the names of the delinquents, their offenses and the punishments awarded.

No Mexican could be confined by an other Mexican without the approval, in writing of the *preboste,* and further approved by the American police officer.

The Mexican officer selected for *preboste* was a conscientious and able gentleman, who performed his difficult task with tact and firmness, and was of great assistance to the United States officials in maintaining discipline.

Petty offenses involving the United States officials of the camp, such as failing to keep tents or streets clean, disorderly conduct, etc., received summary punishment at the hands of the police officer; such punishment consisting of confinement in the punishment pen, or extra labor awarded on the spot.

Attempts to escape, bribing, or attempting to bribe sentinels, assault and battery, insubordination, refusing to work, and the more serious offenses of like character, were handled by the executive officer.

Punishment ranging from confinement in a dark cell on bread and water, to permanent detention in a separate inclosure, was awarded.

A complete record of every case was kept in a book provided for that purpose, which showed the name of offender, the offense, date, punishment awarded, when punishment was completed, and final disposition of the case. This blotter was subject to review by the commanding officer, to whom appeal could be taken, if desired.

To provide places for those subject to punishment, five barbed-wire inclosures, separate from the main stockade, were constructed; one for officers, one for enlisted men, one for women, one for permanent detention of officers and men, and one for permanent detention of women.

These were all provided with suitable shelter and latrines, and were isolated from the main stockade by the construction of high board fences.

For solitary confinement, cells in the guard house at Fort Bliss, Tex., and Fort Wingate, N. Mex., were utilized.

Large working parties were required daily from the Mexicans for various duties in connection with the camp, and this furnished an excellent opportunity for punishing the minor offenders by assessing extra labor, and at the same time excusing those who behaved themselves.

The presence of women in the camp was the most prolific source of trouble, and many knotty problems were presented to those in charge in the settlement of domestic difficulties.

In the permanent detention pen for men were confined all officers and enlisted men who had broken their parole, attempted to escape, or been recaptured after escape, those involved in the construction of tunnels with a view to escape, and those guilty of bribing, or attempting to bribe sentinels with a view to escape.

In the permanent detention camp for women were placed those who has been repeatedly guilty of infidelity in their domestic relations and who appeared incorrigible.

To insure the observance of the orders given in the camp, and to place the responsibility for the non-observance of same, each street in camp, of which there were sixty-six, was placed in immediate charge of a Mexican officer. At the head of each of these streets was placed a substantial bulletin board, and on it appeared the name of the *"Encargado"* for the street. Any orders for the troops quartered on any street were delivered through this officer; any failure to carry out police regulations, to preserve

order, or to enforce cleanliness, required a satisfactory explanation from him; failing this, into the punishment pen he went.

Laxity in the marital relations furnished the basis for practically all disturbances of the peace of camp. Very few of the women were married legally to the men they accompanied, though many had lived with their so-called husbands for years and seemed to be happy and faithful in their domestic relations. Others appeared to regard it as no crime to discard one husband for another who seemed to offer greater inducements in the way of comfort or material advantages. This invariably caused the deserted lover to seek satisfaction, which generally took the form of an assault on the woman with the first object at hand, usually a piece of stove wood.

Wife-beating does not appear to be listed as an offense among the Mexican lower classes, and it was difficult to teach them a new standard of morals in this direction.

Another common source of trouble was the propensity every Mexican of the lower order appears to possess, to annex to himself any property available for his use, regardless of ownership.

Petty thieving was most common, and extended even to occupants of the same tents, and was unlimited in its range. A cot was stolen from under a sick man in the hospital; a woman relieved her neighbor of a tame field mouse.

A few complaints were made by Mexicans of harsh treatment at the hands of the American soldiers on duty over them, but not one complaint upon investigation, appeared to have sufficient basis to justify steps being taken against the alleged offender.

As a general rule, the relations of the American troops with the Mexicans were very friendly, and the former certainly did all in their power to make the latter as comfortable as possible, consistent with the existing conditions.

The most serious breaches of order were the attempts at escape on the part of Mexican officers and soldiers. As soon as it became generally known that the United States intended holding them indefinitely many conceived a desire for liberty, and attempted to secure it by bribery and other means.

The prevalence of a great deal of sand and dust on the camp site at Fort Bliss, and the frequency of high winds, with resultant blinding dust storms at night, furnished the opportunity for some to escape by digging under the fence, or by cutting the

lower wires of the fence. A suggestion to electrify the fence about the camp was deemed inadvisable, due to the danger to children or to innocent parties who might come in contact with it.

Measures to strengthen the fence, by placing the wires closer together at the bottom, and increasing the number of sentinels at night, practically stopped the escapes. Some few succeeded in bribing sentinels to permit them to escape; many more were arrested by the sentinels for attempting to bribe them.

One officer, General Mercado's chief of staff, disguised himself as an American Hospital Corps man, and passed out during a rainy night with the ambulance.

ADOBE HUTS, DETENTION CAMP.

Four Mexicans were shot by sentinels in attempting to escape, two with fatal results.

After arriving at Fort Wingate, N. Mex., the difficulties of the problem of preventing escapes were augmented by the fact that the stockade fence was but dimly illuminated by oil street lamps, and on dark, rainy nights, of which there were very many, escape was possible in spite of all precautions.

At Fort Wingate, the stockade was further strengthened by a second low wire fence outside the main fence with wire entanglements between the two. On the interior, a dead-line fence, 10 feet from the main fence, was run.

Full and frequent notice was issued to those inside, of the prohibition against attempts to escape and warning them of the danger of being shot by sentinels.

A group of a dozen made their escape shortly after arrival at Fort Wingate and were trailed and brought back by Navajo Indians from the reservation near by.

An invariable punishment for bribery, and attempted escape, was transferral to a smaller isolated inclosure for the remainder of the time during which the Mexicans should be held in the United States.

(*To be continued.*)

Again—Why Militia?

By Maj. Leslie R. Naftzger, Inspector General, Indiana.*

DESPITE much that has been said in years past, particularly since the Spanish-American War, concerning the lack of a consistent military policy, the American people do have a military policy. To date, however, such policy has not been an effective one because Congress has consistently failed to make it effective. I believe the military policy of the United States relative to the armies may be stated as follows:

1. A Regular Army sufficiently large to maintain coast defenses in useful condition, to act in aid of civil authorities, to occupy certain strategic positions at home and in foreign possessions, to provide a mobile army for seizing and holding bases in event of attack and to furnish coast guards during the initial period of war, to gather military information, to maintain systems of military instruction for Regular and Reserve forces, to provide an expert and professional official personnel for command and in aid of commanders in an augmented war army and to preserve the traditions and approved customs of military service.
2. A Reserve or supplemental Army composed of men trained in military fundamentals but devoting only such time to military study and training as may be taken without undue sacrifice of civil success, such force, however, to be organized, armed and disciplined as provided for the Regular Army.
3. The militia of the nation, generally, unorganized, but educated as greatly as possible to an appreciation of military obligation. This constitutional militia to be utilized as volunteers, if needed, as many as desire receiving in peace time such instruction in use of the military rifle as may be obtained from the formation of rifle clubs and such tactical instruction as may result from attendance upon military and land grant schools and colleges and through independent military companies organized for instruction in drill. National and State laws now provide for the issue of certain ordnance to such organization.

I shall not discuss the question of the sufficiency of the Regular Army. That is a matter for the General Staff and War College. Enough to say that the tactical organization of the Regular Army should be perfected at once and that Congress should not hesitate to authorize a strength adequate to make

*See INFANTRY JOURNAL, January-February, 1915.

proper tactical organization possible and to accomplish the purposes to which the Regular Army should be—and is—devoted. It is regarding the creating of a Reserve Army that the gravest questions are presented, and it is to this phase of our military policy that this article is addressed. It is not my intention to consider this problem from any viewpoint except that of law; there are many other sides to this matter, but if the legal questions are determined others may be quickly resolved into details of legislation and administration which present no great difficulty.

Without reviewing the legislation of Congress pertaining thereto, sufficient to say that the present effort to accomplish a Reserve Army is through utilization of the Organized Militia. It is not to be denied that under the guidance and direction of the War Department, the militia of the several states has progressed remarkably toward military efficiency in the few years last past and at the present time bills are pending in Congress, commonly called "the Militia Pay Bills," which seek to give a Federal status to the National Guard or Organized Militia making it available as a Reserve Army of the United States. Irrespective of the conclusion —even if it may be determined that the militia, as such, by reason of legal obstacles, cannot become in fact such a force—there is much merit in these bills as through the operation of such laws as are contemplated by the bills there will be increased incentive to military instruction and the body of militia thus much better prepared to become volunteers in the event of war. Let it be understood now that I believe absolutely in the necessity for the passage of these bills although, as will be shown hereafter, I am convinced that they will not and cannot accomplish the purpose of creating a reserve to the Regular Army, automatically becoming a part thereof upon proclamation of war, as is intended.

Under the pay bills, it is "the militia" which is to be called to the service of the United States. The constitutional declaration that Congress has power to call forth the militia "to execute the laws of the Union, suppress insurrection and repel invasion" is not an ambiguous nor mystic phrase. Undoubtedly it means exactly what it says and therefore the authority of the President to use the militia, as such, is limited to the duties for which Congress has constitutional authority to provide for calling it forth. Because of the constitutional limitation any provision by Congress for other use of the militia, as such, than the uses limited would

be a nullity. The militia, as such, therefore, no matter how great its efficiency, cannot be used by the United States for general military service.

Being precluded from use of the militia, *as such*, for general military purposes, may the Congress under its powers "to provide for the common defense and general welfare" (Clause 1, Sec. 8, Art. I) make provision for training the militia so as to insure a sufficient number of citizens somewhat acquainted with the art of war, thus making possible the rapid raising of volunteer armies. This is a broad power and it is certainly sufficient authority for Congress to pass the militia pay bills without reference to the probable conclusion that the militia cannot become automatically a part of the Regular Army for war purposes. And when this clause is considered in conjunction with clause 12 of said Sec. 8, Art. I—"To raise and support armies"—the possibilities viewed from the standpoint of conscription are very suggestive.

There is no longer the slightest doubt but that the National Government, whenever it deems the necessity to exist, may use the militia, as such, or may conscript it for general military purposes. The United States may take by classes, by occupation, according to degree of military preparation or according to any other plan and the legislative mandate is absolute. The Federal draft has been sustained universally and no state law may operate to negative it; if it be militia, organized or unorganized, there is no power to say "nay" to the Congressional demand. (Vide—— Lanahan v. Birge, 30 Conn. 438; Kneedler v. Lane, 45 Pa. St., 9 Wright, 238, 5 Phila. 485; in re Wehlitz, 16 Wis. 443; Ex parte Hill, 38 Ala. 429; Ex parte Coupland, 26 Tex. 708; Ex parte Tate, 39 Ala. 254; Fitzgerald v. Harris, 33 (Suppl.) Ga. 54; Jones v. Warren, 34 Ga. 28; Jeffers v. Fair, 33 Ga. 347; Burrought v. Payton, 16 Grat. Va., 470.) But it must be remembered that conscription operates to create Federal soldiery only and conscripted militia would no longer be militia, as such, but solely Federal soldiery.

Is there not here, then, a solution of the problem? As has been said above, there is certainly authority for Congress to assist in preparing militia for war service under the power "to provide for the common defence and general welfare;" in addition there is specific authority in the Constitution for Congress

"to provide for organizing, arming, and disciplining the militia." (Clause 16, Sec. 8, Art. I). If there was nothing more in this latter clause the problem would be indeed solved, for Congress could provide for organizing, arming and disciplining the militia as it deemed wise and make such provision for its use under the "common defence and general welfare" clause as seemed necessary; but there is more to the clause and the remainder limits very greatly indeed the authority of Congress. The remainder of the clause is: "and for governing such part of them as may be employed in the service of the United States, reserving to the states respectively, the appointment of the officers, and the authority of training the militia according to the discipline prescribed by Congress."

Under said clause 16 when Congress has provided for organizing, arming, and disciplining the militia, the provisions made by Congress are the supreme law of the land and all interfering state laws or regulations must necessarily be suspended in their operation. (Vide—Houston v. Moore 18 U. S. (5 Wheat) 1; Dunne v. The People, 94 Ill. 120. See also, Martin v. Mott, 12 Wheat. 19; Luther v. Borden 7 How. 1; Presser v. Illinois 116 U. S. 252). There was no accidental use of words in this grant of power for as said by Justice Story:

> This power—organizing, arming and disciplining the militia—has a natural connection with the preceding—calling forth the militia to execute laws of the Union—"and if not indispensable to its exercise, furnishes the only adequate means of giving its promptitude and efficiency in its operations. It requires no skill in the science of war to discern that uniformity in the organization and discipline of the militia will be attended with the most beneficial effects, whenever they are called into active service. It will enable them to discharge the duties of the camp and field with mutual intelligence and concert, an advantage of peculiar moment in the operations of an Army; and it will enable them to acquire, in a much shorter period, that degree of proficiency in military functions, which is essential to their usefulness. Such uniformity, it is evident, can be attained only through the superintending power of the National Government." Citing The Federalist, Nos. 4-29, etc. (2 Story on the Constitution, 5th Edition, Section 1204, page 117.)

It is true that there is little authority for interpreting the words "organizing," "arming," "disciplining," and "training," as they are

used in this clause, but if Justice Story was correct in his theory —and it would be a bold jurist who would challenge it—surely these words would be judicially defined best to effect the intent of the Constitution upon the theory stated by the justice. Such interpretation would leave to the states authority only to appoint officers and to provide the machinery of training. I say *only* for emphasis. What is there to compel the states to cooperate with the Congressional requirement? Suppose certain states should fail or refuse to appoint officers or to provide for training as provided by Congress? Is not such now the case in some states? What can Congress do about it? Nothing, absolutely nothing, except withdraw Federal funds. It is analogous to a law which would give to courts power to render judgments but placed in the hands of sheriffs authority to execute the judgments without recourse in event the sheriff failed or refused to act. I do not say that it may not have been the intention of the framers of the Constitution that this clause should operate mandatorily upon the state to appoint officers and provide for training, but I do say that under the dual theory of state sovereignty and national sovereignty it is doubtful if even the doctrine of complete national war sovereignty is sufficient to compel action by objecting states. There is no authority in the United States to provide for governing the militia except "such part of them as may be employed in the service of the United States." So long as the power of "government" or control is wholly in the hands of the states, how could the United States require any training or appointment of officers, if the states decreed otherwise?

The United States then has the power to make appropriations for the training of the militia, to supply arms and equipment, to fix the discipline, to prescribe the organization, and has full and complete authority to take the militia, organized or unorganized, into the Federal service by conscription, but an absolute veto power is placed in the hands of the states to make non-effective all Federal legislation looking toward preparation for making "the common defence" effective and for the use of militia, as such, in any effective way, even in the limited manner authorized by the Constitution.

But suppose that the states are willing to cooperate with the United States, as indeed most of them are, what then? Let it be taken for granted that more or less effective state armies

would be developed to be used by the United States "to execute the laws of the Union, suppress insurrections and repel invasions;" let it be taken for granted that vast benefit to the Federal Government would arise in preparing soldiers who might volunteer for general war service; let it be taken for granted that such state armies could be conscripted by the United States for general military service—is this creating a sufficient Reserve Army to merge into the regular organization as a part of the first line for general war purposes? It certainly is not, for under none of the assumptions does there remain anything to be done by the Federal Government or by the citizen to perfect the right of the United States to use the citizen as a soldier.

There remains then the question—"Can the status of Federal soldier be superimposed upon the status of militiaman?" That is to say—may a militiaman be given such a status that the Federal Government may control his training and be insured for his services in the event of war? If the Federal Government is to control the training of militiamen the states must surrender a constitutional right. To be effective this right would have to be surrendered by all states. Also it is probable that it would be necessary for the states to surrender authority to appoint officers. Immediately it becomes a question, in such case, if the militiamen affected would not at once cease to be militiamen, for in the event that the states yield up powers constitutionally reserved to them, a different control and different system of control exists than is provided by the Constitution. The force under Federal control would not be the constitutional militia but a force created by contract. Furthermore, the contract would have to be concerning a definite force. It is improbable that the United States would be satisfied with an unorganized force. The states are prohibited from maintaining troops of war without consent of Congress. Such force as contemplated would be troops of war, under a strict definition, and such might be maintained by consent of Congress, but such troops would not be constitutional militia but armies of the several states contracted as mercenaries to the United States Government.

But, says the student of the militia pay bills, it is not the intent of the bills that the Federal Government should take control of the militia except in the event of war. The provision of the bill is that the militiaman shall in addition to the oath of enlistment to

the state obligate himself to serve the United States in the event his services may be required. That is to say, the status sought to be created is a contract status for future service on the part of the militiaman—the militiaman is to be considered as granting an option to the Federal Government for the use of his services, such option to continue during the term of his enlistment. An examination of the bills, however, does not disclose any provision for an acceptance of the option by an authorized agent of the Federal Government and a question arises in relation to contracts for personal services *in futuro* which may be academically interesting but in the absence of judicial construction in reference to such contract it might be very embarrassing to the Federal Government to depend upon such contracts. Of what avail would a suit for damages for breach of contract, or for specific performance be when soldiers are needed. The efficacy of the contract provided for in the militia pay bill, is, to say the least, questionable, if the individual or his state government should be averse to entering into the military plans of the Government. It seems to me that the proposition is somewhat analogous to a marriage ceremony in which the question propounded to the groom would be, "Do you promise to take this woman for your wife within three years from date if she desires?" Answer: "I do." And the question to the bride: "If you desire, will you, within three years, take this man for your husband?" Answer: "If I so desire."

There is another objection to the pay bills as providing such force as is intended. Clause 2, Sec. 2, Art. II of the Constitution provides that the President, "shall nominate, and with the advice and consent of the Senate, shall appoint . . . all . . . officers of the United States." The pay bills seek to make officers of the United States out of officers of the militia by the process of calling them into the service of the United States, by reason of which call, and in order to avoid the constitutional limitation in the use of militia, they are to cease being militia officers but become officers of the United States Army. How can the executive authority be thus swept aside? In the absence of commission from the President of the United States it is certainly questionable if they, as such officers de facto, would have the necessary *de jure* powers to execute the duties of the offices assigned to them.

Why not look at the issue squarely and accept the constitutional limitations as they are? They are put into the constitution for a

purpose and to my mind that purpose a wise one. It is not the business of the states to make war nor prepare for war—such is the business of the United States. The United States needs a reserve army and has the authority to create one. It is not necessary that such reserve army be maintained in the field but may be maintained just as the Organized Militia is maintained. The only needful thing is for Congress to act upon the plan outlined years ago by Gen. Upton. It is not necessary that the states be left defenceless by such a plan. No right or prerogative of any states is assailed. The Constitution lays upon the United States the duty of guaranteeing to every state a republican form of government, protecting them against invasion and on application of the state legislature (or of the executive when the legislature cannot be convened) against domestic violence. The militia, as such, is yet available to the states in the constitutional case. What sense is there in the states maintaining the military establishments which most of them now do for any other purpose than to provide forces for the United States, a duty not that of the states but of the United States. The military establishments of the several states now press hard upon the constitutional inhibition against maintaining troops of war without consent of Congress; they are not nearly so effective and are much more expensive for use in case of domestic violence than a permanent constabulary and there is scarcely a tenable argument in favor of the present plan based upon the good of the respective commonwealths. It is time to get down to "brass tacks." No matter how persistently one may cling to his idea of state sovereignty and "States' rights," there is none who will claim that any peculiar state privilege is destroyed when the United States assumes its proper military obligation to all the states and puts itself in possession of an adequate force to insure the continuance of our national life and institutions and the security of the national domain against attack or dishonor. There is no insuperable difficulty in effecting contracts between the United States and the several states by means of which the United States may obtain use of armories now existing in the several states. There is no reason why the several states in return for an insurance that reserve members of the Army stationed therein may be made available in time of great domestic peril, may not contribute to the support of such a reserve army. The same arrangement as now

exists relative to the Organized Militia may be carried out in effect except that the dual allegiance must be eliminated, the United States must be supreme in a military sense and thus brought to efficiency a great organization of willing and earnest men whose present sacrifice and patriotic zeal but too frequently lead them to hours of service and study which brand them as foolish in the minds of their civil associates and competitors.

A Layman's Plan for Organizing a Reserve Army.

By Frederick M. Ives.

I.

NOW that Congress has adjourned without passing any measures to increase the strength or efficiency of our land forces, it would seem as if the time had arrived for those who are interested in this branch of our national preparedness for defense to formulate a definite program in order that, by concerted action, they may make their influence felt during the next session of Congress.

A good start in this direction has been made through the foundation of the National Defense League, and its publicity campaign. There is already a strong demand for a moderate increase in the size of our Regular Army and for the accumulation of adequate reserves of men, ammunition and equipment.

The object of this paper is to consider only the most important of the needed reforms—that is, the creation of an adequate Reserve Army. It is unfortunate that up to the present time no really good plan for such an army has been suggested. All the comprehensive plans so far put forth provide only for getting a sufficient number of men to fill the ranks. The all-important question of procuring suitable officers has been much neglected. A little, however, is being done. At a number of our colleges some military instruction is being given and the student summer camps, under Regular Army instructors, are, in our present condition of hopeless unpreparedness, of very great value in training a limited number of young men in the rudiments of military science. But in proportion to our real needs, such makeshifts are ridiculously inadequate and may lead to a false sense of security unless their limitations are well recognized.

It cannot be too strongly insisted upon that no system of reserves can be adequate unless it provides for a full complement of both commissioned and noncommissioned officers.

Probably no army system exists today anywhere which is com-

patible with American ideals and ways of living and which is capable of producing adequate results. It would seem to be necessary for us, therefore, to work out for ourselves a plan adapted to our special national requirements, if public support is to be enlisted in favor of an Army Reserve.

To be acceptable to the public, a Reserve Army system must be cheap and unmilitaristic in spirit and it must put no burden of military duty on the general public. To be acceptable to the soldier, the system must be capable of securing an efficient, ever-ready and numerically adequate fighting force.

A plan fulfilling these requirements is submitted for consideration, more as a suggestion, that will lead to sound discussion, than as a final solution of the problem. It calls for an annual expenditure of about $16,500,000, of which fully $12,000,000 would be spent on the ordinary college education of 12,000 young men, $2,000,000 on the partial education of an additional 14,000 young men, leaving only about $2,500,000 devoted to purely military purposes.

For the $2,500,000 a year spent for purely military purposes we would get, at the end of eight years, a well-trained and well-officered Reserve Army of about 430,000 men. At the end of sixteen years there would be in the country an additional 300,000 to 400,000 men who, having served their time in the Reserve, would be a valuable military asset though available only if they volunteered their services.

The chief objection to the plan is that it is incapable of producing any results inside of two years. At the end of the first two years of the system, the Reserve Army would begin to grow at the rate of about 50,000 men a year.

The chief advantages of the system would be (a) its economy, since only a small amount of the money spent would have been spent unproductively; (b) its ability to produce the most important units of armed numbers,—that is, officers—and (c) the ease with which it could be started on a much smaller scale than is here proposed.

If the system for training the officers could be started at a single college, with not more than 200 cadets, and at an annual expenditure of only $200,000, it is not improbable that a demand for its extension would soon arise, for every Congressman would

find it to his advantage to secure for his own State the educational advantages enjoyed elsewhere.

II.

It has been estimated by the General Staff of the Army that the adequate defense of the country, in the event of war with a first-class power, would require at once a mobile field Army of about 600,000 officers and men.

Toward such an army we have available at the present time 25,000 Regulars and 120,000 State Militia. Assuming that the Militia can be much improved and that the next Congress will increase the Regular Army by 25,000 men, we would still lack 430,000 officers and men for the completion of the desired field army.

A field army of 430,000 officers and men would have to be composed about as follows:

Officers (1/20 of the total force)	21,500
Noncommissioned officers (1/8 of total)	53,800
Privates (balance)	354,700
Total force	430,000

Assuming that soldiers are fit for field service for eight years after they have completed their period of training, it would be necessary, in order to maintain the strength of a reserve composed of trained men, to add to the reserve each year a number of new men equal to one-eighth of the total required. There is, of course, a certain amount of wastage due to death, disease, etc., which will amount to about 15 per cent. of the required force.

On this basis we should have to train each year approximately

Officers	3,000
Noncommissioned officers	7,700
Privates	44,000

in order to maintain a reserve army of 430,000 officers and men.

Officers.—In order to obtain the 3,000 officers required each year, it is proposed that the National Government shall endow 12,000 four-year college scholarships, to be apportioned according to State population, among a definite number of already existing universities and colleges. The institutions accepting the Govern-

ment students to agree, in return for their regular tuition fees, to provide the lay instruction, to make availabe a suitable gymnasium and athletic field for the use, but not exclusive use, of such students and to accept not less than 200 at a time. The military instruction would be provided by Regular Army officers detailed for the purpose. The students to be chosen by an Army board after a competitive examination into their mental and physical fitness.

Students accepting a Government scholarship to be required to enlist for twelve years in the United States Army; four years in the active service and eight years in the reserve.

The active service to be the four college years.

The reserve service to call for only two duties:

(1) To report name and address to headquarters at least once a year; (2) to respond at once for active duty with the colors, if called upon by the President.

Students accepting scholarships to be allowed to pursue, in any department, any of the regular college courses.

In addition to their college work, students holding Government scholarships would have to give, say, eight hours a week to physical training, military drill and the theory of military science.

They would further have to give ten weeks of the twelve summer vacation weeks to army service.

Throughout their college course students would be under the complete control of their military superiors, who would hold them responsible not only for their military but for their college work.

The total time each student would be required to give directly to the Government in the course of his four-year college course would be as follows:

(1) Eight hours a week for four college years of forty weeks, which would equal	160 days of 8 hours
(2) Three summer vacations of ten weeks, which would equal.....	210 days of 8 hours
Total time given to military training..	370 days.

The Army, it is believed, could be trusted to make very good Reserve officers out of properly selected material, in 370 working days.

In return for the time thus given to the Government by the students, the Government would give to them:

(1) A college education free of cost.
(2) A physical and disciplinary education of incalculable value.
(3) An adequate military education.
(4) A commission in the Reserve Army on graduation, ranking from captain down.

The cost of such a system of training would be moderate. No expense need be incurred for buildings and grounds. There would be no economic waste, as practically all the money spent would have been spent on higher education and would thus be of direct national benefit. The military training would be in the nature of a by-product.

In order to express the cost in dollars, we will assume that the tuition and maintenance of each student will amount to $800 a year and that to give the military instruction and to keep track of the equipment will require two Regular Army officers and five noncommissioned officers and privates to each hundred cadets.

On this assumption, to graduate 3,000 Reserve officers a year, it would cost for

12,000 cadets at $800 a year for tuition and maintenance	$9,600,000
240 Regular Army officers as instructors at $5,000 a year	1,200,000
600 Regular Army noncommissioned officers and privates as drill masters and caretakers at $1,000 a year	600,000
Total	$11,400,000

It should be noted that in all probability, the sons of the well-to-do would not seek these scholarships, as the training would undoubtedly be rigorous and exacting. It would offer a means by which each year 3,000 poor and ambitious boys, willing to work, could get a higher education; a goal now practically beyond their reach. Of course the possession of private means should not disqualify a boy from enlisting; indeed, a young man of means who willingly subjected himself to the severity of the course would be deserving of the highest credit. But practically very few would do so, and the country would obtain annually a

large increase in the number of young men who had received a higher education.

Noncommissioned Officers.—The noncommissioned officers, as well as the private soldiers, would be obtained from the Regular Army.

In order to make this possible, two changes in our present system of enlistment would be imperative. The Regular Army would have to be increased by about 25,000 men, to a total of 125,000, an increase which is already urgently needed irrespective of the plan under consideration, and the policy of encouraging reenlistments would have to be abolished. The proposed term of enlistment would be for ten years. Two with the colors and eight in the Reserve. Only noncommissioned officers and special service troops should be allowed to reenlist. During the eight years of the Reserve service, the men would be subject to duty only in case of war or of national emergency. Their only active duty would be to report their name, address and physical condition to headquarters at least once a year. For this they might be allowed a nominal fee.

With an active duty of only two years, 125,000 Regulars would produce a yearly Reserve force of 62,500 and in the eight years of the Reserve service, 500,000 men. There would, of course, be a certain amount of wastage, and if we take this to amount to 15 per cent., we would still have available 425,000 men, which is more than we need, since we have seen that we require only 408,500; that is, of

Noncommissioned officers	53,800
Privates	354,700
Total	408,500

The margin of safety is probably sufficiently large to allow for the loss, in the total number of Reserves, which will arise from allowing noncommissioned officers and certain of the special service toops to reenlist.

To train in eight years the 53,800 noncommissioned officers which will be required would necessitate training them at the rate of 6,720 a year or, in round numbers, at the rate of 7,000 a year.

In order to do this it is proposed that special schools be

founded and made part of the Regular Army organization. The best educated and most intelligent of the yearly recruits would be chosen for these schools and they would receive a systematic special training, in addition to their regular duties.

To induce men to join the schools and work faithfully, they should receive say, $100 a year extra pay, and promotion to the rank of noncommissioned officer in the Reserves at the end of their two years of active service.

The cost of establishing and running the proposed schools is assumed to be $100 a year per man.

The total cost of producing 7,000 noncommissioned officers a year would, on the assumptions we have made, amount to

Extra pay of $100 a year to 14,000 men.....	$1,400,000
Cost of instruction, $100 a year per man.....	1,400,000
Total	$2,800,000

Privates.—To require any duty of the Reserves in time of peace, such as reporting once a year for ten days' service, would be a mistake. The military value of such service would be small, the expense great. It would probably be better to spend what money was available on field maneuvers of armies composed of Regulars, student cadets and Militia and so afford the needed field experience to the higher officers. The greatest objection to yearly service on the part of the Reservist would be a tendency to make Army service unpopular. Few men would be willing to enter a service that for eight years might seriously interfere with their business or possibly make them lose their positions.

If no service is to be required of the Reserves, no pay should be allowed them. Enlistment must be made attractive by the inducements offered during the period of active service. By doing away with present needless Army posts and the system of extra pay for reenlistment, the Regular pay could be somewhat increased without increasing the cost of the Army as a whole. Service in the Army under the proposed system should prove more attractive than it is at present for the following reasons:

(1) The pay could be somewhat increased by doing away with reenlistments and useless Army posts.

(2) One man out of every eight would receive $100 a year extra pay in addition to certain educational advantages which should increase his earning capacity for the rest of his life.

(3) The period of active service being short, enlisting should not be as serious a step as it is now, since if a man felt he had made a mistake he could look forward to regaining his freedom in a reasonably short time. The eight years in the Reserve would be no hardship as no duties would be required of the Reservist except in time of war; never a probable event, and to a man with military leanings, not necessarily an unwelcome one.

Experience alone, however, could show if the inducements indicated would be sufficient to produce the large number of enlistments required each year. If they were not, something would have to be added to them.

It would be of the highest importance to keep track of the addresses and the physical condition of the Reservists and this would be very difficult to do unless they had a personal interest in the matter. The easiest way, probably, to keep track of them would be to allow a small fee to every Reservist who reported to headquarters once a year.

This could be easily arranged for at very small expense. We will assume that for $5 every Reservist would take, without prodding, the necessary trouble. For the 430,000 officers and men that we have taken as a basis for calculation, it would then take $2,150,000 a year merely to keep track of them.

The total cost of the Reserves can now be summarized. It would amount to about $16,350,000, distributed as follows:

To training 21,500 Reserve officers.....	$11,400,000
To training 53,800 noncommissioned officers..	2,800,000
To keeping track of 430,000 Reservists at $5 each	2,150,000
Total	$16,350,000

No allowance is made for arms and equipment, as we are trying to show what the additional cost of a Reserve system would be. The country has now to keep a quantity of Reserve equipment on hand which deteriorates by becoming obsolete. The wearing out of a small percentage of this equipment by use would hardly affect the cost of the present inevitable depreciation.

III.

Since the proposed additional expenditure of $16,350,000 a year on the Army is a very considerable sum, it may be well to

again make plain what the country would be getting for the money.

From the purely educational point of view it would be getting the equivalent of about $14,000,000. From the economic point of view the gain cannot be given in dollars, but it would be enormous. It is daily becoming better recognized that the industrial strength and productive capacity of a country is dependent on widespread higher education.

At the present time only about 0.37 per cent. of the population receives yearly more than a high-school education. Twelve millions a year of the proposed expenditure would be spent in sending 12,000 young men, taken from all sections of the population, to our colleges and universities. They would be, as has already been pointed out, young men of small, if any, independent means, since sons of the well-to-do would hardly care for the rigorous discipline.

The other $2,000,000 a year that can be considered as being spent on education, would be devoted very largely to the mental educational of 14,000 young men who, without the advantages of such an education, would probably continue through life to belong to the ranks of unskilled labor.

Strictly speaking, not more than about $2,500,000 a year would go to "waste," even if the extreme view is taken that all money spent on the Army is wasted money.

But even if we take the view that all the increased expenditure of $16,350,000 is properly chargeable to national defense, should we be getting an adequate military equivalent for our money? It certainly seems as if we should be.

We would have the following military assets:

(1) At the end of eight years we would have a well-trained (and as will be shown later) organized first Reserve of 430,000 men, officered and ready for immediate use.

(2) There would be in our colleges 12,000 young men, half of whom at least would be available as drill masters for Volunteer levies.

(3) At the end of sixteen years, in addition to the above, there would be in the country the greater part of the Reservists of the first eight-year period. These men, ranging in age from 30 to 40 years, while not subject to call to the colors, and more or less out of condition, would form a valuable Reserve force. In case of pressing necessity, a large proportion of them would

undoubtedly volunteer, and they would be invaluable as depot guards, garrison troops and instructors to raw levies.

An indirect advantage which should not be overlooked, is that sixteen years after the introduction of the proposed plan, the country would contain upward of 50,000 educated men, in civil pursuits, with some knowledge of military affairs. The influence of their opinion would be invaluable in helping mold the country's future military policy.

The economy of the proposed system becomes manifest when we consider that at present every trained *available* soldier costs the country about $1,000 a year. The cost of every trained *available* soldier in the proposed first Reserve would cost the country $38 a year, after the system was once established. If, however, we should deduct the money that would be spent on lay education from the total expenditure, the military cost of every trained *available* soldier in the first Reserve would amount to only about $6 per year per man.

IV.

Even if it be granted that the plan for a Reserve Army as outlined is feasible and economical, doubts may be entertained as to whether it would be an efficient and readily available force. A consideration of the essential requirements of efficient armies should serve to clear away such doubts.

The war efficiency of an army depends on two elements: armed numbers and mobility.

Armed numbers depend mostly on population and wealth. Generally speaking, they can be obtained by any populous and wealthy country, even after war has been declared. Without mobility, armed numbers are almost useless; some hold them to be worse than useless.

Mobility depends on organizations and the training of the constituent units. Neither of these essentials can be obtained without trained officers. A sufficient number of trained officers can make an efficient army out of an intelligent civilian population in perhaps six months. Good officers, even for the junior grades, cannot be made inside of two years. Arms, ammunition, supplies of all kinds, can all be had for money within reasonable limits of time. The only way to have officers is to train them in time of peace, before they are needed.

The proposed plan provides the trained units (officers and men), which are one essential to mobility. We will now, very roughly, indicate how the other essential element of mobility, organization, can be obtained.

The country would have to be divided into military districts, each having its base depots containing the arms, ammunition and equipment for the Reserve units assigned to them.

On entering the Reserve, each officer and man would be assigned to a definite company and regiment and told where to report on the mobilization order. Individual notification should not be needed, each member of the Reserve Army should always be kept furnished with a card telling him exactly what to do if called to the colors.

A certain number of Regular Army officers with a detail of enlisted men could, in conjunction with the 240 officers and 600 enlisted men assigned to the colleges as instructors, have charge of the mobilization depots and the registration of the Reserves.

The General Staff of the Army would, of course, be in possession of a detailed paper organization of the Reserve Army on a field basis and would know exactly and in detail the composition and strength of each unit. All the commands, in the Reserve, from major up, would be kept constantly assigned to specific Regular Army officers and provisions would be made in advance for filling in war time the places these officers held in the Regular Army by promotions, by retired officers or by assignments from the Reserve. In time of war the Regular Army would be left short of first and second lieutenants, owing to the promotions made necessary to fill the grades above, but there could be no disorganization of the Regular service, for these lower grades would be filled by Reserve officers, young men of good education and adequate training.

The Reserves would be adequately officered, since all the higher grades would be in the hands of Regular Army officers, and all the lower grades in the hands of educated men with considerable military training. In the whole 430,000 Reserve force, there would not be a single green man nor room for a single political appointee.

All such details can be safely left to the Regular Army to work out. It has seemed well to indicate the general method in order to show that it would be possible not only to obtain a full com-

plement of officers for the Reserve, without crippling the Regular Army, but to have the Reserve so organized that it would be available for service in a very short time and, if called upon, would assemble automatically at its depots fully officered and with its equipment waiting.

It would seem, therefore, that a Reserve force manned and organized along the general lines indicated, would be capable of meeting any reasonable requirements. Behind such a first Reserve it would be possible to organize, if necessary, a volunteer army of any required size, since the country would still contain over 300,000 men who had had training and who could act as instructors.

V.

It is essential in war time that the wastage from death, disease and wounds in the active units should be constantly made good, and this cannot be efficiently done unless it is arranged for in advance. The creation of new units, as was done in the Civil War, to replace those wasted by service, is an unmitigated military evil, made necessary then by the necessity of calling upon the individual states to furnish their quota of Volunteers. This the states did by giving a commission as colonel to anyone who could raise a regiment and of captain to anyone who could raise a company. The result was what was to be expected: a constant injection into the field armies of badly trained units officered by politicians or patriots whose enthusiasm was much greater than their military knowledge or experience. Another result was the retention in active service of wasted regiments which at times did not muster a fighting strength of over fifty officers and men.

There is only one remedy for such an evil and that is securing the continuous life of a regiment by giving it a permanent home base and recruiting center.

One more thing must be provided for if a national army is to secure loyal and enthusiastic support from the individual states. State pride must be directly appealed to by giving to the states a feeling of direct ownership in the several units of the Federal Army. This can easily be done without decentralizing its control, merely by carefully selecting its mobilization centers and naming, and not merely numbering, its units.

To put the matter concretely, let us take the Reserve Army we have been considering. For practical reasons, such a Reserve

would have to be divided into a number of field armies. By naming and not merely numbering them and their constituent units, we can give to a Federal Army the outward appearance at least of an aggregation of state units. We might, for example, follow some such method as the following:

The Reserve Army of 430,000 men which our plan calls for, could be divided into seven field armies of about 62,000 men, each field army composed of three divisions of three infantry brigades, one regiment of cavalry, one artillery brigade and a special service corps. For such units we might select names somewhat as follows:

1st or North Atlantic Field Army.
  1st or Green Mountain Division.
  1st or Maine Brigade.
    1st Maine Infantry.
    2nd Maine Infantry.
    3rd Maine Infantry.
  2nd or Vermont Brigade.
    1st Vermont Infantry.
    2nd Vermont Infantry.
    3rd Vermont Infantry.
  3rd or New Hampshire Brigade.
    1st New Hampshire Infantry.
      Etc.
  2nd or Massachusetts Division.
    1st or Massachusetts Brigade.
      1st, 2nd and 3rd Massachusetts Infantry.
    2nd Massachusetts Brigade.
      4th, 5th and 6th Massachusetts Infantry.
    3rd Massachusetts Brigade.
      Etc.

The Cavalry and Artillery units would in the same way take names from their source of origin in addition to their numbers.

On the same plan we could name all the other units. We could have a

2nd or Central Atlantic Field Army.
3rd or South Atlantic Field Army.
4th or Gulf Field Army.
Etc.

and their divisions, brigades and regiments could be named from the States in which they would be recruited.

The plan we have proposed for raising a Reserve would fit in well with the above suggestion.

Let us suppose that the 2nd or Central Atantic Field Army had the 1st Division composed of New York State troops, and the 2nd Division of New Jersey troops and the 3rd Division of Pennsylvania troops.

New York City, Trenton and Philadelphia could be made the mobilization and recruiting centers and supply depots, and the student cadets could be assigned to Columbia College, Princeton and the University of Pennsylvania. The Regular Army men transferred to the Reserve would be assigned, so far as possible, to their home state bases, and in this way the Reserve units would soon acquire local traditions and support without for a moment losing their national character and independence of state control.

The mobilization centers and supply depots would of course be permanent in character and as recruiting stations could act as feeders for their units in the field.

If a Volunteer Army had to be raised in addition to the Regular Reserve, such centers would be invaluable and the officers and men whose time in the Reserve had expired would naturally gravitate towards them.

By methods such as have been very roughly outlined, state pride and local support could be enlisted for the various Army units whose continuous historic existence would be made possible. It is impossible to overstate the military value of traditions that cling to certain regiments such as to the Scotch Black Watch, the Prussian Guards or, in a much less degree, to some of our Regular and Militia regiments.

Some of the considerations advanced seem sentimental, and they are, but that does not detract from their merit. Undoubtedly it sounds less militaristic and is less suggestive of military dictatorship and other vain fears to say that 1st Pennsylvania Infantry rather than the 1st United States Reserve Infantry, yet if we can make them mean the same thing and in addition produce secondary benefits, why should we not humor national idiosyncracies to this harmless extent?

VI.

The great objection to the plan that has been outlined is that it is incapable of affording any adequate military protection except after the lapse of a considerable length of time. This, of course, is true, but on the other hand, there does not seem to

be any way, short of the creation of a large Regular Army, of obtaining such protection.

All that can be done in the interval of waiting will be to continue along our present path, but somewhat more energetically. We can increase the Regular Army. We can improve the Militia. The present student summer camps can be encouraged, and, if possible, multiplied. Rifle clubs should be encouraged. In short, all the present makeshifts should be encouraged. But let us recognize clearly that without officers, no effective army is a practical possibility. Let us also recognize the fact that to be available when needed, a Reserve Army must not only be composed of fairly trained units, but it must have a living, organized existence with bases of supply established and furnished before the day of need has actually arrived.

An advantage of the proposed plan, from the point of view of practical politics, is that its most important feature, the training of officers, could be undertaken at once and on a very small scale. If the system could be started at a single college it would inevitably tend to grow. There should be little opposition to this feature of the plan. Every state spends money generously on education and the country as a whole considers such money well spent. There have been efforts in the past to establish a national university, and this idea has a considerable following. There is no need of a new university with its expensive buildings and administrative machinery. True economy lies in utilizing our present educational plant to its full capacity. Government scholarships would at a fraction of the cost, accomplish all that a national university could possibly do, except, of course, in the field of original research, which can best be developed in institutions where there are no undergraduate students and scholars and scientists are left free to devote all their time to original work.

An Auxiliary Range Corrector Scale for Infantry.

By Capt. H. E. Eames, 28th Infantry

THE Bausch and Lomb Optical Company of Rochester, New York, have recently produced a six power prism binocular glass (Zeiss Prism Stereo 6 x 30) fitted with a special range corrector scale designed by the author to obviate the difficulties of aiming at long range and often at invisible field targets. The scale is in addition to the mil scales which are found in the U. S. Signal Corps glass, Type EE, and which are commonly used by infantry and cavalry officers in field firing.

The usual target of the rifleman, be he infantry or cavalry, is an invisible line of artificially concealed heads against which only poor results can be expected because of the difficulty of aiming and holding on so indefinite a point. The difficulty of describing such a target to the man in the ranks still further reduces the percentage of expected hits because many men, not understanding the target, will aim at other and more visible points.

To obviate these two reducing factors by giving the soldier an easily described and recognized target which by its clear definition insures good aiming and holding, use is made of auxiliary aiming points, the true target often remaining unknown to the company (par. 218 S. A. F. M.).

When firing with an auxiliary aiming point, the rifle is aimed not at the point to be struck but at some especially good and clearly defined point or line in the landscape directly above or below the true target. The range set upon the rear sights is not the true range to the target or to the aiming point but an artificial range which with the chosen line of sight will cause the bullets to strike the desired target.

To enable the fire director to determine this artificial range setting, it is necessary that he know the true range, that he be able to distinguish the target with a six-power glass and that he understand the very simple use of the scale.

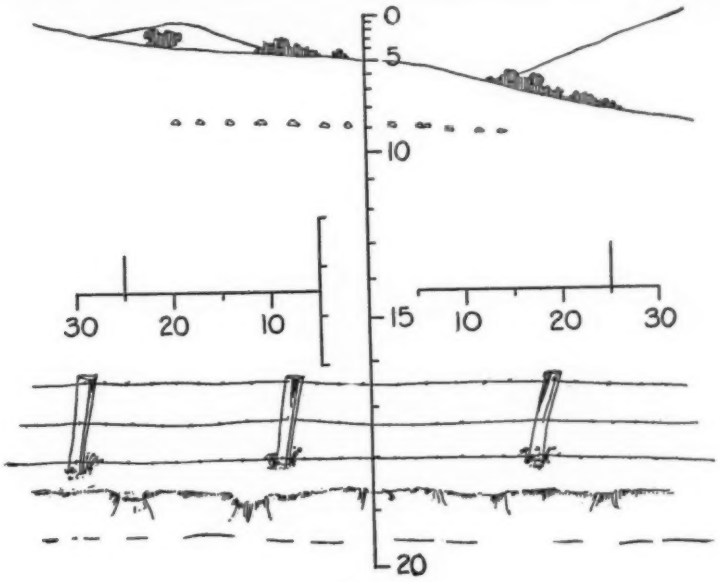


FIG. 1

In use, the graduation marking the true range is laid upon the true target. The selected aiming point will then fall opposite the sight setting to be used. If, for example, the target is a line of heads 900 yards away, the graduation 900 on the scale would be laid on the line of heads seen through the glasses. Any one of several aiming points will then be opposite the appropriate graduations on the scale to be used against this or that aiming point. The sky-line for example might cross the scale at 500. If aim be taken at the skyline with 500 yards set on the rear sight, the bullets will hit in the line of heads at 900 yards as intended. The bottom wire of a fence immediately in front of the firers might cross the scale at 1,800 yards and if aim be taken at that wire with 1,800 yards elevation, the bullets will fall in the line of heads as before. In fact the entire landscape is available to the firer who has but to choose that point or line which because of its color, shape or nearness would make the best aiming point in that particular landscape.

The theory upon which the scale is constructed will be understood by reference to Fig. 2.

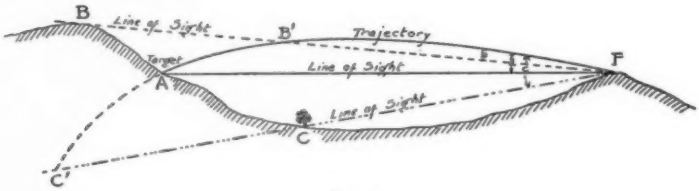


FIG. 2

The figure shows a cross section through two hill features with the firer at "F" and the target at "A" (1,000 yards distant from "F"). It also shows two possible aiming points at "B" and at "C" and the trajectory necessary to hit the target at "A." *Case I;* The target at "A" is clearly visible. The rifle is therefore aimed directly at the target with sight setting 1,000 yards. The line of sight is the line F-A, the angle of departure is the angle *a* and the trajectory is the line F-B′-A which the bullet travels and so strikes the target at A as intended. No matter what auxiliary aiming point is used, the bullets will travel this same trajectory and strike at A when the appropriate sight setting is used. For example:—*Case II;* The target at A is invisible except through glasses. Aim cannot now be taken at the target and an auxiliary aiming point is necessary. At C is a well defined point. If the rifle is aimed at C, the desired trajectory will be produced when the angle of departure is *c*, the line of sight F-C and the "range" on the sight is equal to F-C′. *Case III;* The target at A is invisible and the skyline at B is chosen as an aiming point. If the rifle is aimed at the point B with an elevation *b*, the line of sight will be F-B, the angle of departure will be *b* and the bullet will travel along the trajectory F-B′-A, passing the line of sight at the range F-B′ and striking the target at A as desired.

The angle of departure *c* used in *Case II* is made up of the angle of departure *a*, necessary to hit A when aiming directly, plus the angle of site A-F-C. To determine the total angle *c*, therefore, it is necessary to know the angle *a* and to measure the angle of site A-F-C. The angle *a* is known by reference to a table of fire for the given rifle and ammunition, and the angle of site may be measured in the same units (degrees, minutes,

etc.) by any angle measuring device such as a transit or sextant. A much simpler method, however, is to use the rear sight leaf of the rifle held upside down at a distance from the eye equal to the sight base of the rifle, for the angle *a* in terms of yards is marked on the leaf by the intercept between the zero of the scale and the graduation marking the true range to the target and the angle of site may be read on this improvised angle measuring instrument between the graduation marking the true range and the graduation opposite the auxiliary aiming point C when holding the sight leaf the proper distance from the eye with the true range graduation laid on the point A. With the leaf so held the auxiliary or artificial range to be used (angle *c*) may be read directly as shown in Fig. 3.

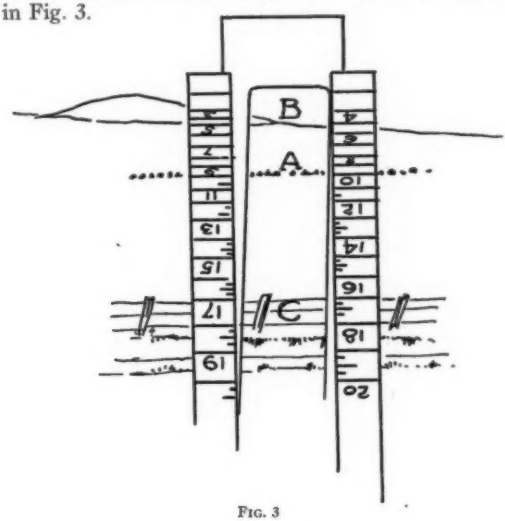


FIG. 3

Such a procedure is only as accurate as the use of the leaf. Inaccuracies will occur in practice through the holding of the leaf at an incorrect distance from the eye, through an inaccurate holding of the true range graduation on the target and an inaccurate reading of the scale opposite the auxiliary aiming point. The inaccuracies disappear with the rear sight leaf graduations engraved on the diaphram of the field glasses as in the glasses in question, but the principle remains identical with the rough method described for use of a sight leaf.

Tests of the accuracy of the scale on the glasses were recently made on the Marine Corps range at Winthrop, Md. In these tests the rifle was fired by a skilled marksman aiming at various points on the landscape such as the bottom of the butts, intermediate firing stands, clouds of earth, scraps of paper, etc., the true ranges varying between 200 yards and 500 yards and the artificial range varying between zero and 1,800 yards. Only enough firing was done to assure that the graduations on the scale were correct.

For comparative purposes, two scores of three shots each were then fired at an "M" target so placed as to have an unfavorable background and be invisible at ranges beyond 300 yards. At 300 yards two hits resulted when aiming at a bare spot in the grass with a sight setting of 950 yards and but one hit when aim was taken directly at the target with the correct elevation. At 500 yards a series of five shots was fired with aim taken at a clod of earth near the firer and with a sight setting of 1,175 yards. Four hits on the figure resulted although the target was so invisible that it would have been quite unprofitable to have fired directly at it for comparative purposes. In this latter firing, the aiming point and sight setting was chosen by the sergeant who used the glasses for the first time in this test thus demonstrating the simplicity of the device.

While the use of the mil scale carried by the glasses is so self evident as to require no description to one accustomed to the use of mils in target designation, still the use of this unit by the infantry is of so recent a date that it is thought a description of the system might be profitable.

The mil is a unit of angular measure used in target and sector designation and in estimating ranges and occupied "fronts" in terms of yards or men. It is an angle (approximately 3 minutes of arc) whose tangent is $\frac{1}{1,000}$ of the radius. It is this relation of tangent to radius which makes it especially valuable in connection with problems arising in field or battle firing since it permits mental calculation of the several problems which require the solution of triangles.

Three formulæ are involved in such solutions and by their use practically all problems may be solved mentally. These are:

(1) $R = \frac{W \times 1{,}000}{M}$ R = Range in yards.

(2) $W = \frac{R \times M}{1{,}000}$ W = Width or height in yards.

(3) $M = \frac{W \times 1{,}000}{R}$ M = Number of mils.

The following examples of the use of these formulæ indicate their practical use.

Example I; (Estimation of range).

A certain tree is estimated to be 45 feet high (=15 yards). It covers 15 mils of the scale. It is therefore (estimated) 1,000 yards away, for:

$$R = \frac{W \times 1{,}000}{M} = \frac{15 \text{ yards} \times 1{,}000}{15 \text{ mils}} = \frac{15{,}000}{15} = 1{,}000 \text{ yards.}$$

The telegraph poles seen on a distant railroad are known (from previous measurement of such poles) to be 44 yards apart; the distance between two adjacent poles is 40 mils; the range to the railroad is, therefore, 1,100 yards, for:

$$R = \frac{W \times 1{,}000}{M} = \frac{44 \text{ yards} \times 1{,}000}{40 \text{ mils}} = \frac{44{,}000}{40} = 1{,}100 \text{ yards.}$$

Example II; (Estimation of fronts).

A line of skirmishers at about one man per yard of front covers 40 mils of the scale; the range is known to be 800 yards. How many men are there in the skirmish line?

$$W = \frac{R \times M}{1{,}000} = \frac{800 \text{ yards} \times 40 \text{ mils}}{1{,}000} = \frac{32{,}000}{1{,}000} = 32 \text{ yards (or men).}$$

A column of infantry in "fours" is seen by a patrol at a range of 1,200 yards. It covers 120 mils from head to rear of colum. How many men are in the column?

$$W = \frac{R \times M}{1{,}000} = \frac{1{,}200 \text{ yards} \times 120 \text{ mils}}{1{,}000} = \frac{144{,}000}{1{,}000} = 144 \text{ yards or } 288 \text{ men.}$$

Example III; (Determination of mils—in distributing fire).

A hostile force known to contain about 100 men is deployed in position 1,000 yards away but so concealed that its flanks cannot

be seen or determined definitely. The company commander decides to cover a front of 200 yards with his fire, 100 yards each side of a visible group of heads in the hostile line. How many mils or "sights" should be covered?

$$W = \frac{W \times 1{,}000}{R} = \frac{200 \text{ yards} \times 1{,}000}{1{,}000} = \frac{200{,}000}{1{,}000} = 200 \text{ mils or } 4 \text{ sights.}$$

A machine gun platoon known to contain two guns is concealed at a range of 900 yards with one of its guns visible through glasses near a small bush. The company commander decides to cover a front of 50 yards on each side of the visible gun. How many mils or "sights" should be covered?

$$W = \frac{W \times 1{,}000}{R} = \frac{100 \times 1{,}000}{900} = \frac{100{,}000}{900} = 111 \text{ mils or } 2.2 \text{ sights.}$$

The "sight" referred to in the foregoing examples is a width of 50 mils which for convenience is engraved on the mil scale in the glasses. Since the rear sight leaf is 0.7 inches wide and is normally held 14 inches from the eye when aiming, it covers 50 mils and is used in transmitting firing data to the men composing the fire unit. It is thus used, for example, in describing indistinct targets or ones which are difficult to recognize from a verbal discription; for conveying to the men an understanding of the front to be covered by the fire of the unit, the division of that front into sectors, etc.

It is used in preference to the finger system (par 218 S. A. F. M.) because it is more accurate and does not require a shifting of the rifle from the right to the left hand.

In target designation it is used exactly as the "finger" is used whether pointing out targets or fronts to be covered but is more rapid and more accurate.

Inter-Communication on the Battlefield.

By 1st Lieut. Albert K. C. Palmer, 1st Field Artillery.

IN THE preparation of this paper it is desired to call attention to some definite uses of the personnel and matériel we have now in the service, and to suggest a few additions to the equipment to accomplish the well recognized need of communication between the various arms in the field. I have used freely the ideas and even words from books and articles that I have read and I hope that it will not appear that I have attempted to put these forth as my own, even though I have not in every case shown them as direct quotations.

A translation by Capt. Oliver L. Spaulding, Jr., 5th Field Artillery, in the *Field Artillery Journal* for 1911, Vol. I, No. 1, commences as follows: "In maneuvers, large and small, in militia lectures and discussions, and in professional publications of all kinds, the point most strongly emphasized of late is the necessity for cooperation of all arms, and more especially of the infantry and artillery. The more one studies military history the more is one impressed with this lesson." Now the question arises as to how this cooperation may best be effected. It is not sufficient to form general rules as to the employment of the arms on the battle field so as to act in support of one another unless we establish a means of communication between them. Quoting from the same article as above, "A typical instance of proper cooperation of infantry and artillery is found in the attack of the 2nd Guard Division at St. Privat. The advance of the infantry was supported by the divisional artillery battalion and the 4th Light Battery of the Corps Artillery, which advanced from their position between Ste. Marie Aux Chenes and St. Ail to within 1,800 meters of St. Privat. Later they again changed position, moving 400 meters to the front, and so enabled the infantry of the division to hold the ground it had gained and prepare for the assault on St. Privat. Toward evening, by order of Gen. Pape, the corps artillery, southwest of St. Privat, opened fire upon the village; a little later, fourteen Saxon batteries at Aubone did the same. This fire, although it caused some casualties among the assaulting

infantry, enabled it to take the village. Here we find that the cooperation of the infantry and artillery also was spontaneous; they supported each other, although without any means of intercommunication. If, however, the artillery could have gotten word from the infantry at the proper time, it could have avoided firing into it. On this point the German Infantry Drill Regulations say: "The artillery must always be in touch with the advancing skirmish lines. Habitually artillery officers are sent forward to communicate by signals." The Japanese recognized this point in the Russo-Japanese War. At Wafangau the 4th and 5th Artillery advanced with the infantry of the 5th Division; the fire being directed by flag signals. "At the Shaho, the Japanese artillery had gained sufficient confidence to continue its supporting fire until the advancing infantry gave the signal to cease by displaying the national flags; this fire made the Russians keep under cover." The French under Gen. Percin's system of instruction have what are called "orientation officers," who are artillery officers specially trained in infantry combat, and are attached to the staff of artillery commanders for the purpose of keeping their chiefs constantly informed of the progress of the action. Gen. Joffre, while in command of the 2nd Corps, organized a system of communication by which each infantry regimental, and battalion, commander assigned a mounted officer with a mounted or cyclist orderly, and each company commander a sergeant, as agents of communication with the next higher commander. In artillery communications, Gen. Joffre's instructions distinguished between communication *upward* and *downward*. First, the artillery commander must be kept informed by the commander of the whole force, how the artillery is to support the infantry; second, the batteries especially assigned to support the attack must receive information as to the obstacles and resistance encountered by the infantry. The use of both mounted messengers, and telephones and signal details was provided for. This system was adopted for the whole army.

We have, therefore, to consider communication "by superiors"; and communication "by subordinates," or actual commanders on the spot. The communication "by superiors" is the simplest to consider, for this is always in existence, operating through the usual military channels, and controlled by the commander of the whole force. He makes his plans and communicates them to

the artillery commander, which can easily be done by the routine of agents or telephone lines. Then, after this, the artillery commander makes his dispositions, accordingly assigning batteries to their various duties. It is not until these points have been settled by the superiors that the subordinate commanders of infantry and artillery can get in touch with each other. After the infantry and artillery units have been assigned the parts they are to play, a preliminary conference between their commanders is all that is necessary. The infantry commander, then, should designate the particular points to be fired upon from time to time, according to the situation of his troops. This is all that is required of the communication by subordinates; and for it to work successfully it is not necessary to put the artillery under the orders of the infantry commander. So far we have considered only the communication of the subordinate commanders of the artillery with those of the other arms, particularly the infantry, though, of course, the same applies when working with cavalry, and a question now comes up which bears great importance in an engagement. It is where, for example, a battalion of artillery in the advance guard is supporting an infantry attack, and as the fight progresses the other battalion of that regiment is brought up from the main body. Communication between the major commanding the first battalion and the infantry commander is already established, must the colonel of the artillery regiment now establish communication with the infantry? No; it is only a matter of intercommunication between the artillery, and no necessity for cause of confusion by changing the already existing communication. The battalion which first establishes this communication maintains it throughout the action, although other artillery units may come up later; its commander communicates with his own direct superior, the officer commanding these battalions, and keeps him informed of the needs of the infantry so as to enable him to act intelligently. These principles shown roughly for two battalions of artillery may apply equally well for larger units.

So far we have only gone over the much-studied subject of the liaison of the artillery and the other arms, and the various commanders through which this liaison may directly be effected, now to consider the methods of communication by which these commanders may be connected. In the first place, it may not be

considered improper to regard the lines of communication on the battle field as of two general classes; first, those behind or outside of the extreme range to be expected to be used by light artillery guns; that is, over 5,500 yards from the first lines of the opposing forces; second, those within this area, or what might be thought of as the fire-swept zone. The first class I do not think needs much discussion, for its operation is covered by our various regulations, which provide the use of agents either mounted or cyclists, telephone lines, radio stations, and signal details, and is always in existence through the usual military channels. The second class is only generally treated in the regulations and leaves much to be desired as to how we may definitely expect smaller units to be actually and promptly brought in touch with one another during combat. For instance, our Field Artillery Drill Regulations, paragraph 799, say: "Advancing infantry must be accompanied by artillery officers or scouts, who will communicate to the artillery commander the progress and needs of the advancing infantry." But how? Paragraph 869, Field Artillery Drill Regulations, states: "As our attacking infantry reaches the danger zone of our artillery, the commander of the infantry firing line should, by a preconcerted signal, such as the display at the firing line of a conspicuous and suitable flag, inform the artillery commander of the fact. The artillery then increases its range so as to impede the movement forward of possible hostile reserves, and to take the enemy in rear in case he retreats." Will it never be advantageous to consider other means of communication than by flags? Is it well to leave the selection of a conspicuous and suitable flag until the commencement of the action, and then have it decided upon by a couple of officers who may not live to carry it into effect, and of whose decisions their successors would probably be entirely ignorant?

In this connection, that is, communication under the second class, a thorough system worked out between the smaller units of the arms would be applicable to the larger units. Let us, therefore, consider the tactical or fighting units as, the battalion for artillery, the regiment for infantry, and the squadron for cavalry. Taking, for example, the operations of a division, where, according to our Field Service Regulations, we have two regiments of artillery to nine regiments of infantry, or, say, four battalions to eight regiments. These may be divided in many

different ways, according to circumstances. A battery may be assigned to the support of a battalion, or even two battalions, or a regiment; or a battalion may be assigned to the support of two regiments, and so on, but the system of communication with our present organization and equipment would hold the same with obvious modifications in each case.

Take the case of a battery. The battery commander has four lieutenants; two chiefs of platoon, a reconnaissance officer and a commander of the combat train. According to the new Field Artillery Drill Regulations (Changes No. 3), one of the duties of the reconnaissance officer is to supervise the service of information. Why would not he be the best available and most competent person to be sent with the advancing infantry in accordance with paragraph 799 of the Artillery Drill Regulations? That leaves the battery commander his battery detail for maintaining communication with his battalion commander. Always considering the most unfavorable conditions, we will assume that the battalion wire is not available to connect with this separated battery, then the battery must use its own wire. It has now two spools of buzzer wire of about 800 yards each, which would be ample under most conditions for this purpose. However, there should be more spools of similar size for use in connection with the supporting troops. There are three telephones in each battery so that if one is taken by the reconnaissance officer, there will be two left at the battery. The reconnaissance officer should be given a noncommissioned officer (preferably a caisson corporal) as assistant and an orderly. In fights of short duration lasting only a couple of days, or even one day, where the lines are more or less constantly moving there will yet be many instances where the telephone may be used to connect a battery and the commander of the infantry battalion it is supporting. Supposing the condition where the wire cannot be used. Then recourse must be had to flag signals, either semaphore or wig-wag. Often it will not even be expedient for a man to expose himself to signal with flags. Then a device must be found to express two or three short unmistakable messages. Colored flags are inadvisable, as they soon might become familiar to the enemy. Yet some method for common use in the service should be found rather than leave it to the haphazard arrangement of some "preconcerted signal" immediately prior to the fight. A

very good, simple arrangement has been devised by the Field Artillery Board and recommended for trial in the maneuvers of this year. It is explained in the following quotation of a letter from the Field Artillery Board to the Adjutant General of the Army:

1. It seems to be agreed that infantry committed to the attack has left to it only three possible methods of action:

(a) To withdraw;

(b) To advance, of which an incident is

(c) The assault and the consequent possible losses due to friendly artillery fire;

(d) To break off the engagement, remaining in place.

2. It is important that artillery should know promptly the intentions of the infantry which it is supporting to do either of the above things, because under (a) and (b) it must usually maintain or increase the intensity of its fire; under (c) it must increase its range or cease firing on the infantry objective, and under (d) it may economize ammunition by ceasing fire or it may be used against other objectives.

4. Action (d) is important to the artilery particularly and not at all to the infantry directly. Moreover, if such action is intended or takes place at considerable distances from the hostile objective, information regarding it can be obtained by direct observation, or by wire, flag, relayed voice, or messenger. If such action is intended or takes place close to the objective, artillery fire will probably still be needed. An emergency code signal for this is, therefore, considered unnecessary.

5. Thus are left three possible urgent messages giving notice of situations seriously important to the infantry and demanding suitable concurrent action by the artillery. For example:

(a) *We are about to retire.*

(b) *We are about to advance.*

(c) *Artillery fire is causing us losses.*

6. To send these messages the board proposes the use of a simple, light, small, portable, collapsible frame of wire mounted on a light jointed staff, on which may be exposed two square, colored flags, so constructed as to expose either one of the two solid colors or one combination of the two colors.

7. The board suggests for message (c) the solid red square; for message (a) the solid white square; for message (b) a square the upper triangle of which is red, the lower triangle white. In order that the side of the device exposed to the enemy may be inconspicuous and of no meaning a third neutral (perhaps khaki) colored square should be provided. All of these colors should be sewn wholly or partially together as follows: Lay down a khaki square with one diagonal horizontal; sew to it across the

horizontal diagonal and along the two lower sides a superposed white square; sew to the same horizontal diagonal a superposed red square which is also to be sewn along its upper edges to the upper edges of the khaki square. Across the lower triangle of the white square print in large characters message (a); turn down the upper triangle of the white square and on its face print similarly the message (b); across the lower triangle of the red square print similarly the message (c). To the corners of the squares thus made sew suitable tapes or tags or other quick adjustment devices for attachment to the frame.

We have now attempted to show a means of communication between a single battery and the infantry with which it is acting. It makes no difference what the strength of the infantry force may be, as in any case there will only be one point with which connection must be established—namely, the infantry commander. In considering the communication between a battalion of artillery acting with other arms, the methods would be the same. The means for connection by wire would probably have to be made by the signal troops, as the present equipment for the headquarters of artillery units is all needed in establishing its own intercommunication. The question now arises as to what artillery officer is the best to send from the battalion. Why not the battalion adjutant? The only other staff officer the battalion commander has is the battalion quartermaster and commissary, who most probably will be with some of the trains. The rank of a battalion adjutant of Field Artillery is that of a captain, the decision of which it may be supposed was assisted by the idea to have an officer of thorough experience in and knowledge of the powers and limitations of his own arm, and of sufficient service to warrant an assumption of sufficient professional intelligence of the other arms to make him the proper agent of communication. This link, of course, is between the artillery battalion commander and the commander of the troops with which he is cooperating; for connection between any individual battery assigned to the various duties of batteries of preparation, breaching batteries, or accompanying batteries, and the especial unit it must support the battalion commander has available from that battery the lieutenant most fitted for the work.

As to the most effective methods of communication, it may be observed that in the Balkan War the Serbs signalled by means of flags. They also marked each important change of position

of the firing line by lighting fires of brushwood or straw, or in some cases by setting fire to the houses of a village or an isolated farm. Whatever the service of communication in the Bulgarian Army, it did not work well, as shown several times by the losses in their infantry by friendly artillery fire. Particularly was this noticeable during the attack on the advanced positions near Adrianople, when the 12th Regiment of Infantry lost one-fourth of its strength, and again in the assault on Adrianople, when the infantry regiment which attacked Kestenik suffered equally severe losses from friendly shrapnel fire. There were some instances among the Bulgars where flags and colored lanterns were used. From what little information we have been able to get from the present war in Europe, it would seem that the telephone, and especially the buzzer, is considered of the utmost importance. However, in this war the opposing lines have settled down into long engagements amounting almost to siege operations, where extensive trench work has been necessary.

Military School of Music.

By Major F. A. Mahan, U. S. A. Retired.

THE organization of the Army of the United States includes seventy-two bands of which:

1 belongs to the Corps of Engineers.
6 belong to the Field Artillery Service.
14 belong to the Coast Artillery Corps.
15 belong to the Cavalry.
31 belong to the Infantry.
5 belong to the Recruiting Service.

The bands of the Recruiting Service are constantly changing as more or fewer musicians are enlisted and as the demands for bandsmen are greater or less in number. As, however, something has to be assumed in such a case in order to make an estimate, it will be assumed that the organization of these bands is the same as that of the bands of the Infantry and Engineers.

The personnel of the bands of the Army as at present organized is:

	Engineers 1 Band	Field Artillery 6 Bands	Coast Artillery 14 Bands	Cavalry 15 Bands	Infantry 31 Bands	Recruiting Service 5 Bands	Total 72 Bands
Chief Musician	1	1	1	1	1	1	72
Principal Musician	1	1	1	1	1	1	72
Chief Trumpeter	..	1	1	1	..	..	35
Drum Major	1	1	1	1	1	1	72
Sergeants	4	4	4	4	4	4	288
Corporals	8	8	8	8	8	8	576
Privates	12	11	11	11	12	12	829
Cook	1	1	1	1	1	1	72
	28	28	28	28	28	28	2,016

The pay of each of these members of the band during his first enlistment is:

Chief Musician	$75 per month
Principal Musician	40 per month
Chief Trumpeter	40 per month
Drum Major	36 per month

Sergeant	36 per month
Corporal	30 per month
Private	24 per month
Cook	30 per month

The chief musician, the principal musician, the chief trumpeter, the drum major and the sergeants receive, each, an increase of $4 per month for each enlistment from the second to the seventh inclusive.

In like manner, the corporals, the privates and the cook receive, each, an increase of $3 per month for each enlistment from the second to the seventh inclusive.

The following table shows the monthly pay for each member of the band and for each enlistment up to and including the seventh:

	First Enlistment	Second Enlistment	Third Enlistment	Fourth Enlistment	Fifth Enlistment	Sixth Enlistment	Seventh Enlistment
Chief Musician	75	79	83	87	91	95	99
Principal Musician	40	44	48	52	56	60	64
Chief Trumpeter	40	44	48	52	56	60	64
Drum Major	36	40	44	48	52	56	60
Sergeant	36	40	44	48	52	56	60
Corporal	30	33	36	39	42	45	48
Private	24	27	30	33	36	39	42
Cook	30	33	36	39	42	45	48

There is no further increase after the seventh enlistment.

As it is impossible to state the actual pay of any band, much less of all the bands, by reason of the constant changes of membership caused by men entering or leaving the service, it seems best to take the average pay, that of the fourth enlistment, and to determine on this basis the pay for the whole. There is obtained in this way a total sum, annually, of $980,844, as follows:

72 Chief Musicians at $87 per month	$6,264
72 Principal Musicians at $52 per month	3,744
35 Chief Trumpeters at $32 per month	1,820
72 Drum Majors at $48 per month	3,456
288 Sergeants at $48 per month	13,824
576 Corporals at $39 per month	22,464
829 Privates at $33 per month	27,357
Total for one month	$81,737
or for 12 months	$980,844

If to this there be added the cost of rations, estimated at 35 cents a day for each of the 2,016 members of the service, and the cost of clothing, estimated at $75 a year for the same personnel of the bands, there is obtained a grand total of $1,389,588, as follows:

Pay for 2,016 members of the seventy-two bands.	$980,844
Rations for 2,016 members of the seventy-two bands	257,544
Clothing for 2,016 members of the seventy-two bands	151,200
In all	$1,389,588

In this estimate, no account is taken of the cost of maintenance of quarters, of heating and lighting, of purchase and repair of instruments, of purchase of music, music paper and of other supplies, and of sundry other elements of expense arising from time to time but impossible to preestimate with any degree of accuracy. All these items of expense can be placed safely at 10 per cent. of the above grand total of $1,389,588, which would then give $1,528,547 as the annual cost of maintenance of the Army bands.

Let now the pay of the members of the bands be compared with that of other enlisted men; there is found that:

1. The chief musician receives $30 per month more than the next best paid enlisted man in the regiment.

2. Only the regimental sergeant-major, quartermaster and commissary sergeants and the first sergeants of companies are better paid than are the principal musician and chief trumpeter; the difference is $45 as against $40.

3. Sergeants of the band receive the same pay as sergeants of Engineers, Ordnance, Signal Corps and Quartermaster Corps, and $6 a month more than the company sergeants of the regiment to which the band belongs.

4. Corporals of the band receive the same pay as the company sergeants of the regiment to which the band belongs.

5. Privates of the band receive the same pay as corporals of Engineers, Ordnance, Signal Corps and Quartermaster Corps; $3 a month more than corporals of Cavalry, Artillery and Infantry; $6 a month more than first-class privates of Engineers, Ordnance, Signal Corps and Quartermaster Corps, and $9 a

month more than second-class privates of Engineers and Ordnance, and privates of Cavalry, Artillery and Infantry.

Thus it is seen that, with the exception of the principal musician and chief trumpeter, the members of the band are paid, grade for grade, far more than are any other men in the Army and yet no part of the service is so badly performed and nowhere is everything in such a chaotic condition.

Our Army bands are the worst, probably, in the world and yet it is doubtful whether any other country pays so much for bands. Our bands cost, in round numbers, $1,500,000 a year for which the country and the Army receive only an insignificant return.

Now, what are the causes of such a condition of affairs? There are many, too many to try to mention all, consequently only some of the more important will be given:

1. Lack of musical knowledge on the part of a very large proportion of the officers of the Army, with the resulting incompetence for deciding on the musical requirements and capabilities of bandmasters (chief musicians) and bandsmen, or on the needs of bands.

2. Lack of musical education on the part of the bandmasters, of whom a large part would fail, without doubt, if they were called upon to stand the examination which the members of the bandmaster class at Governor's Island have to undergo before returning to their regiments.

3. Impossibility of obtaining good performers under existing conditions or of holding them if, by chance, a few should be enlisted from time to time.

No good musician will ever remain in a poor band.

No good musician will ever serve under an inferior bandmaster for any longer period than is necessary for him to leave the service. Here, as everywhere else, if the subordinate is to respect his superior it must be because he recognizes in him a better man than himself.

The ordinary musician is not a worker; only the thoroughly good one who has a pride in his art keeps on steadily and constantly, but even he needs an inducement to improve himself which, until now, has never been assured to him.

The ordinary musician in civil life is for the most part an idler

to whom steady and systematic work is distasteful. He soon becomes disgusted with Army life, its restraints and its discipline. As a rule, he has been of age for some years before he enlists, his habits are formed mainly to idleness and he does not wish to give them up.

4. The Army has no way by which it can replace incompetent bandmasters and bandsmen. If one of the former leave the service his successor will be appointed by the same haphazard methods as those under which he came in himself. The small bandmaster school at Governor's Island conducted by the Institute of Musical Art of the city of New York, gratuitously and without expense to the Government, is doing what it can to correct this, but, at the rate of only five graduates a year, it will require nearly eighteen years to replace all the present holders of the position, as some of the graduates of the school will probably have passed out of the service before all the present incompetents will have gone.

No means have yet been devised for replacing incompetent bandsmen. Those at present in the service can be discharged, it is true, but will their successors be any better? More than probably, surely the new men will be no improvement.

There is but one way by which to obtain competent bandmasters and bandsmen and that is by the way adopted for the training of all other classes, grades and ranks of the Army: the special schools.

The Army has now the following special schools:

(a) The Army War College, Washington, D. C.
(b) The Army School of the Line
The Army Signal School
The Army Staff College
The Army Field Engineer School
The Army Field Service and Correspondence School for medical officers
} Fort Leavenworth, Kan.
(c) The Coast Artillery School, Fort Monroe, Va., with its department of enlisted specialists.
(d) The Mounted Service School, Fort Riley, Kan., with its Training School for farriers and horseshoers, and its Training School for bakers and cooks.
(e) The Engineer School, Washington Barracks, D. C.
(f) The Army Medical School, Washington, D. C.

(g) The School for Bakers and Cooks, Washington Barracks, D. C.
(h) The School for Bakers and Cooks, Presidio of San Francisco, Cal.
(i) The School of Fire for Field Artillery, Fort Sill, Okla., with its School for Noncommissioned Officers.

Here then are thirteen special schools of which two are exclusively for enlisted specialists (bakers and cooks) and of which three others have training schools for other specialists: enlisted specialists of the Coast Artillery, farriers and horseshoers, and also for bakers and cooks.

But for the bandmasters of the Army, than who no one is more highly paid in the noncommissioned force, and for the bandsmen, almost all of whom are more highly paid than are any others of equal grade, no provision is made. These two classes include 2,016 specialists who, if pay counts for anything, should be among the best in the service, are left to the hazards of chance while the proper performance of their duties demands long training of a high order.

Just what is meant by "enlisted specialists" is not known, but it is assumed to include:

45 Master electricians
43 Master signal electricians
80 Electrician sergeants of the first class
78 Electrician sergeants of the second class

246 In all

The School for Farriers and Horseshoers applies to

190 Farriers
226 Horseshoers

416 In all

The School for Bakers and Cooks apply to

1796 cooks, or 599 men for each school

(The term "baker" does not appear in the organization of the Army of the United States given in the *Army Register* for 1913, pp. 614-617. It is assumed, therefore, that the word "baker" is considered to be synonymous with that of cook in this case.)

It is eminently right and proper that these schools should exist. Specialists must have special schools for their training as army specialists, therefore this plea is made for the one special

school where the 2,016 musical specialists of the Army can be educated for their particular service.

The training of a performer on a musical instrument must be begun at an early age, when the muscles of the fingers, the hands, the arms, the lips, the cheeks, the throat, the lungs, the chest are yet soft and supple; when they can be developed easily and formed to do what they have to do, and when the would-be performer can carry on all the necessary exercises better and more advantageously than he can at a more advanced age. The technical study of an instrument ought to be finished before the pupil is eighteen years old to obtain the best results.

The objection has been made to a school for the training of bandsmen and bandmasters, that its graduates would not remain in the Army, but would go to seek in civil life positions better than those which the service could offer them. But, does not the same objection hold good for all the special schools for enlisted men? Do none of our educated electricians, our well-trained farriers, our excellent cooks leave the service to seek better positions in the outside world? If these men do this why should there not be raised against the special schools in which they are trained the same objection as that brought up against the military school of music? In fact, these men are much more likely to leave the Army than would be bandsmen if our bands were good. Electricians, farriers, horseshoers, cooks bakers can work alone and any one of them can make a living by himself; but the bandsman, aside from teaching his instrument to others, can do nothing without assistance. He must have other musicians about him; in other words, he must belong to a band, and it is a well-known fact that no qualified musician who has ever belonged to a good band will join one of inferior grade.

There are said to be some 220,000 musicians, so-called, in the United States; how many of these make a really good living from music? There are a few, a very few great teachers and great performers; a larger number of good players and good teachers; still more who are fair and a great majority who are distinctly bad; but it is doubtful whether the total number exceed 2,500. This would leave some 217,500 musicians who, probably, do not and cannot live by music alone but must eke out their existence by manual toil of some kind.

These being the conditions, there is every reason to suppose and to believe that the graduates of the School of Music will be much more likely to remain in the service than will be those of the other schools. The boys, taken from the sources whence they are likely to come and brought at a comparatively early age to such an institution as the proposed school is intended to be, will be taught to regard the Army as their home; they will be brought up in and surrounded by the customs and traditions of the Army; the advantages of their position as bandsmen will be explained carefully to them and, to excite and sustain their ambition, there will be constantly held before them the fact that the position of chief musician is well worth striving for as it is one which brings in far better returns than any for which they can hope, as a rule, in civil life.

And if a few graduates of the school should leave the Army from time to time and go into civil life, wherein is the harm? Is not one of the great duties of the Army that of being to the country an example of all that is best in civic if not in civil life? Cannot a bandsman, and still more a bandmaster, carry with him into the outside world those principles of honesty, of attention to duty and of fidelity in all things which have been impressed upon him in the service? And, in doing this, does he not set to his fellow-citizens an example of what is best in character and in life and cast an additional honor on the country and the service which brought him up?

If, therefore, with an addition of 10 per cent. to the amount which is now spent for wretched bands, inferior bandsmen and incompetent bandmasters, there can be obtained every year 100 young men of good character, well trained as musicians and as soldiers, with a proportionate number of competent chief musicians (or bandmasters), can there be any doubt that the result would be such a marked improvement in our Army bands as would fully justify the cost of establishing and maintaining the proposed Military School of Music?

Varied Ground.

To the Sword Laid By.*

Dedicated to the Seekers after Universal Peace (who can sing it, if they wish, to the air of "Die Wacht am Rhein").

Sword, thou art not a thing outworn,
Though days be evil and forlorn,
And through the land is nothing told
But ease, and trade, and greed of gold.
Oh, better far our fathers knew,
They held thee strong, they found thee true,
Building our corner-stones with this record:
"Ye that come after, Freedom is the Sword."

Peace? Thou art peace, our fathers knew;
Their need was great, their numbers few,
'Twas not for gold and not for trade
They smote and called on God to aid.
And thus, like men through all the years,
They bought their Peace with blood and tears,
And on her fortress-gates of bronze they scored:
"Enter to Peace but ye that bear the Sword."

Home? Thou art Home. Our fathers prayed
That wreck and conquest might be stayed,
That on the hoof-prints of the foe
The cot might rise, the hearth might glow;
And they like all men, sons or sires,
Found naught but thee to fend their fires,
Graving the hearth before the festal board:
"Home-fires burn bright for them that bear the Sword."

*A variation of "To The Sword Laid By," as published in the March-April number of 1914.

Love? Thou art Love. Our fathers dreamed
Of days that fair as Heaven seemed—
Visions in fight, in prison-pen,
In bivouacs of starving men,
That He on high, whose name is Love
Sent as His angels from above.
Singing the squadrons on the shaking sward,
Love, be our Captain, as thou are the Sword!

Peace, Home and Love! Oh may their weal
Shine from the splendor of thy steel
Drawn, ready, thousand-thousand-fold!
And in that flashing be it told,
Whatever weaklings' babble saith,
Save to the foe, thou art not Death!
Roll then in thunder to His throne, our Lord,
"Thou art the Victory, not Death, O Sword!"

E. Sutton.

Recipe for Book Varnish.

Inquiries have been made for the ingredients of the "book varnish" that for many years was sold at one of the leading drug stores in Manila and used in the Philippines to prevent deterioration of books in tropical countries.

The Military Information Division in Manila reports that this varnish, which is manufactured by the Bureau of Science of the Philippines, has been used in the division for twelve years with good results. It keeps off mildew in damp weather and prevents the starch in the cloth from being eaten by insects. It is applied with a camel hair brush and one coat a year has been found sufficient for the climate of Manila.

Recipe.—Shellac (white) 50 gm.; resin, 20 gm.; bichloride of mercury, 1 gm.; alcohol, 1,000 cc.

Allow to stand twelve hours and strain through a coarse cloth.

The Tongue Can No Man Tame.

When the Germans finally entered Belgium a native of Liége made himself obnoxious to one troop by his constant loud talk about the brave defense. Finally the commander summoned him.

"Now you've boasted about enough," he said. "We can't listen to you any longer. I'm going to give you your choice; you will be shot or you will swear allegiance to the German Emperor."

Considerably subdued, the offender pondered. "Well," he decided, "I don't want to die, so I guess I'll swear allegiance."

And he took the oath.

"All right," said the commander, "now you are one of us. You can come and go as you like."

The man walked toward the door and was passing out, when suddenly he turned: "Say," he exclaimed, "didn't those Belgians give us a hell of a fight?"—*Spectator.*

Losses in Battle in the German Army.

Paris, April 6.—The Press Bureau of the War Office gave out today figures, compiled from official German lists of losses of officers. These show that of a total number of 480 generals in times of peace, forty-three (8.9 per cent.) have been killed, and fifty-seven wounded or missing.

Out of 33,154 infantry officers, 8,604 (22.6 per cent.) have been killed and 18,149 have been wounded or are missing.

Out of 7,063 cavalry officers, 366 (5.1 per cent.) have been killed and 881 have been wounded or are missing.

Out of 12,108 artillery officers 912 (7.5 per cent.) have been killed, 2,264 have been wounded, or are missing.

Journal of the Military Service Institution,
May-June, 1915.

Regimental Bulletin.

Close association over an extended period makes toward establishing between the individuals of a command a friendly fellowship which carries far in adversity. It also improves and strengthens the relationship between the commissioned and enlisted personnel and helps to inculcate in all a spirit of common devotedness, sympathy and support. In other words, long association fosters *esprit de corps.*

The present system of detailing officers for foreign service, for staff, and for militia duty has, in consequence of the frequent changes in personnel it causes, done much to decrease the *esprit de corps* of our regiments. This, to say the least, is a misfortune for, as the psychological enters largely into war, more may be

expected from a unit with high esprit, that is, one which is bound together by a feeling of pride and confidence in itself, than one in which these factors are lacking. If we believe, as has been abundantly proven, that esprit is indispensable to true efficiency and if we admit that present conditions act unfavorably on this spirit in our service, then we should use our utmost endeavors to counteract unfavorable influences and maintain in the future as we have in the past, regiments which are a unit in fact as well as in name. An extract from a letter of appreciation says:

"Speaking from the viewpoint of a detached officer, I can unhesitatingly say that the receipt of this monthly communication is a pleasure and a benefit, for not only does it keep *the* regiment fresh in one's mind, but it forcibly impresses the fact, too often forgotten, that much real and important work is done by those not on detached service."

The regiment which inaugurated this scheme for keeping its officers informed of its doings has placed the matter on a roster basis. The captain of Company "A" supervises the preparation of the letter for January, "B" for February and so on throughout the year. The communications are sent out through the regimental adjutant who thus may censor them as the regimental commander may direct. This plan works no hardships on anyone and provides much of pleasure and profit for absent officers; it certainly helps to bind them to the unit with which their fortunes will probably be cast in time of active service and so fosters that rapidly decreasing asset—regimental *esprit de corps.*

INFANTRY.

MONTHLY LETTER TO OFFICERS ABSENT.

APRIL, 1915.

The regiment has just returned from the division maneuvers. The —— Brigade, reinforced by a squadron of cavalry and a battalion of field artillery, operated against the —— Brigade, two squadrons of cavalry and one battalion of field artillery, under the following general situation:

A Brown Army is mobilizing at Houston and reliable reports indicate the mobilization will not be completed before May 1. Our Army is now disembarking at Galveston and Texas City.

The Browns (Texas City Troops), started three days ahead of our brigade. They took part in a celebration at Houston and operated towards Galveston. Our troops left camp on the twenty-first of April. The brigade commander had turned us all out under orders to start a few days before and, after starting us up

the road, sent the troops back then inspected and weighed our wagons. The wagons were over-weight which caused a readjustment of the loads. The wagons were again weighed the day we started.

The regiment had thirty-one officers and 824 enlisted men present on the hike.

War conditions existed day and night. The brigade camped at La Marque, League City and Seabrook. At Seabrook the —— Infantry (less one battalion) with the cavalry, made a reconnaissance in force under ——. The general attack followed the next day. The Whites then withdrew by a forced march at night to League City, where the maneuvers were called off. The entire brigade then marched back to Fort Crockett, a distance of about 26 miles in one day.

The results of the attack were, of course, governed by the umpires, under orders from the division commander. The command of the troops shifted each day to the next lower in rank. After a brigade commander had controlled the troops one day, he became an observer.

The —— Infantry was commended for the work of both Gen. —— and Gen. ——. Also by one of two of the intermediate commanders. It seemed to be called on to perform the most difficult work. The maneuvers as a whole, were very instructive. The spirit displayed by both the officers and men was very commendable. The conditions were very trying at times as it rained a great deal of the time and our camp at Seabrook, where we stayed for two nights, was very muddy. The —— Infantry made a reconnaissance in force, came back into a muddy camp thoroughly soaked, attacked next morning, bivouacked the following night till 2 a. m., marched back to League City, a distance of about 12 miles and went on outpost duty. The following day made the 26-mile march.

A foot inspection was made each day by the company commanders and by the surgeon after our return. Considering the conditions, there were very few blisters. A few men fell out, which speaks well for our training in fitting shoes and in the care of the feet. The men had only one pair of shoes along and they were thoroughly soaked with mud for two days, prior to the attack. Then they had their shoes on from about 4.30 a. m. one day until about 8 a. m. the next day. During this time they had attacked, bivouacked and retreated about 12 miles. Several companies came in without a man falling out on the 26-mile march.

Each battalion had its combat wagon, ration, and one baggage wagon, which made us do some close figuring to get within the weight limits, as the packs were carried on the wagons. Officers' baggage was down to bedrock. Several found after weighing, that they were over weight. The old system of one wagon per com-

pany was much simpler, yet the new system saves four wagons in the regiment.

More attention was paid to the feet than anything else. Some companies dug holes in the ground, spread ponchos over the depression and filled it with water for bathing purposes. Water was supplied by a water wagon, attached to each regiment.

The conditions more nearly approximated war conditions than any maneuvers (except the Olongapo) the regiment has attended in years. Camp sites were not pitched for their convenience.

The war diary turned in by Capt. —— was highly complimented by Maj. ——, brigade adjutant. He said it was the finest he had ever seen.

The advance guard of the attacking force (2nd Battalion, ——, with leading company) was highly complimented by Capt. ——, senior umpire, White side.

Rations were issued daily, which was something new for us. The system of issues worked very well indeed. In fact, the entire system of supply was well handled. The system of umpiring was so handled that an umpire was always present when anything happened. Enough umpires were detailed to send one with important patrols. Capt, ——, —— Infantry, so handled the umpires of the Whites, as to control the situations with practically no friction.

Capt. ——, Lieuts. —— and ——, acted as umpires during the maneuvers. Capt. —— joined in time to go on the maneuvers in command of Company "B."

Capt. —— left for the 2nd Infantry before the maneuvers. The regiment (especially the 1st Battalion) was very sorry to lose him. Capt. —— has been detailed to Q. M. Corps and ordered to Texas City. Lieut. —— is going to Texas City as assistant J. A. Col. —— had reported here but has not taken command. The colonel's two daughters are with him, but Mrs. —— has gone to ——. Col. —— has been relieved of command of the regiment and put in charge of the target range.

Col. —— and Lieut. —— were left behind during the maneuvers. Maj. —— was detailed to the Q. M. Corps, but succeeded in getting relieved. He expects to go to the War College. Capt. —— is on a ten-day leave. He is going to see Capt. ——, who is reported well. Lieut. —— is on leave. Capt. —— is on four months' leave. Lieut. —— is on leave and has been ordered to West Point. Capt. —— has been appointed regimental quartermaster.

Reprints and Translations.

Machine Guns of the German Infantry*

EVERY German regiment of infantry has a machine gun company (the 13th Company) comprising six guns, divided into three sections. On a war footing it is organized as follows:

- Personnel:
  - 4 officers: 1 captain, commander; 3 lieutenants, commanding sections. — Mounted.
  - 92 soldiers:
    - 8 Non-commissioned officers of whom thereô are: 6 chief gunners; 1 n. c. o. at the disposition of the captain and mounted.
    - 70 gunners and privates.
    - 11 drivers.
    - 1 medical attendant.
    - 1 gunsmith.
    - 1 farrier.
- Matériel (13 carriages):
  - 6 machine gun vehicles drawn by 1 pair horses.
  - 3 ammunition vehicles drawn by 1 pair horses.
  - 1 wagon for matériel drawn by 2 pair horses.
  - 1 kitchen wagon drawn by 1 pair horses.
  - 1 baggage wagon drawn by 1 pair horses.
  - 1 forage wagon drawn by 2 pair horses.
- Animals (38):
  - 5 saddle horses.
  - 30 draft horses.
  - 3 spare horses.

A company on peace footing does not horse the four escort wagons, but horses two wagons for drill purposes; the organization is diminished by twenty privates and eleven horses, the total therefore, in peace, is as follows:

4 officers (mounted);
8 noncommissioned officers (1 mounted);
50 privates;
11 carriages (horsed);
27 horses (5 saddle, 22 draft).

Each machine-gun carriage is manned by:

1 chief gunner;
1 pointer, No. 2;
3 gun men, Nos. 1, 3, 4;
1 driver.

Each ammunition carriage is manned by:

1 chief of carriage;
3 gunners (one of whom is a telemeterist);
1 driver.

*From *La Nuova Rivista di Fantiria* for February, 1915. Translated by Second Lieut. J. M. Eager, 3d Field Artillery.

The machine gun is a Maxim, model 1908, modified and made lighter in parts which can support a diminution of weight without injury to the general stability of the weapon. It weighs about 11 kilograms. The gun carriage is composed of a simple sled, weight also about 11 kilograms. The machine gun is transported on an armed carriage on four wheels, drawn by two horses, driven with long reins by a driver who is seated on the front portion of the carriage. The front portion of the vehicle cannot be separated from the rear portion. To go into action, the machine gun must be taken off the vehicle and carried by hand to the place of action. The gun with its sled carriage is carried by two men, one for each pair of bars with which the gun carriage is provided in front and in rear. The sled can also be dragged by means of two girths. Attached to the sled is an extra gun barrel and a small box of tools. Another gunner unloads and carries a pail of water (about 15 liters), which not only provides for filling the jacket with water for the first time, but also for subsequent fillings. Another gunner carries the ammunition, contained in bands of 250 cartridges each. On the march the chief gunner, or the chief of carriage, is seated on the front of the vehicle beside the driver, but if necessary two other gun men can mount on the gun vehicle and three others on the ammunition carriage, so that a section can take up a trot and carry ten of the seventeen men of the gun sections on the carriages.

The captain is personally responsible for the instruction in firing and tactical work of the company.

For firing instruction the captain disposed annually of 11,000 service cartridges and 100,000 blanks; for tactical instruction the company is joined to a battalion of the regiment.

The allowance of ball cartridges is divided as follows:

For instruction in firing, 1,000 cartridges.
For testing the guns, 1,000 cartridges.
For firing for classification of gunners, 7,500 cartridges.
For target practice, 70,000 cartridges.
For firing competitions, 1,000 cartridges.
Noncommissioned officers and pointers, 250 cartridges each.

The 70,000 cartridges for target practice must be apportioned as follows:

For firing by the guns singly, at least 20,000.
For firing by sections, at least 20,000.
For firing by company, what is left.

It is tacitly prescribed that no cartridges of the allotment shall be saved; however, if by exceptional circumstances ammunition should be left from some of the exercises, it must be used in the next exercises or in instruction firing.

Of the 100,000 blank cartridges 40,000 are to be used for field service and 60,000 for tactical purposes.

The course of instruction includes:

Preparatory exercises.
Firing for instruction.
Firing for field service.

During the preparatory exercises the gunners must become completely familiarized with their arm, and a scrupulous precision in pointing must be obtained.

During the firing for instruction gunners must be developed who are capable of using the arm with service ammunition in a very efficient manner. Each gun man must go through the exercise with the same gun, in the same position (the same numbers) and under the same chief. After instruction firing the gun men are divided into two classes, assignment to which depends on the results obtained in the firing courses. Those who do not pass the test are put in as ammuntion carriers or in the different duties of the company, and, if numerous, they are used as substitutes in the company.

Target for sweeping fire are cardboard squares with figures 4 centimeters high.

Firing for service practice is carried out:

1. By gun with the purpose of instruction:

(a) The head gunners in following out firing under service conditions, to make quick decisions for sweeping fire and to change target.

(b) The gun men to carry on the service of the gun quickly and intelligently and to adapt themselves to conditions which may arise.

2. By section and by company in order to form and perfect the groups, to exercise their initiative and to get them accustomed to assuming rapidly and calmly the functions of the superior grades.

In the service of the machine gune, the gun men must be accustomed to perform with "absolute sureness" not only their own

duties, but also those of the other gun men, and the most likely men must also be conversant with the duties of chief gunner.

Exercises calculated to develop accuracy of vision are undertaken with great insistance and also the capacity of avoiding confusion and remedying it, and rapidity in unloading the gun wagons and putting the guns in position.

The greatest attention is given to instruction in estimating distances with the eye and in measuring them with the telemeter; in each company four special distance estimators are appointed and also three telemeterists (but the latter are not confirmed appointments). The whole personnel must be also exercised in the use of digging tools, both heavy and light spades, "in order to protect the gun, themselves and the ammunition."

Since the dexterity which is required of the gun men requires constant practice, recruits who are assigned to machine gun companies must start their special instruction with the guns six weeks after their arrival; all other instruction is limited to the indispensible duties around garrison.

The normal formation of the section is column of carriages, ammunition wagon in rear; the company takes this formation when on the road or marching to position. Generally the gun men of the first two sections march at the head of the company and those of the third in rear. The company can also be formed in line of sections, with the ammunition wagons in the rear rank or on the line of gun wagons. Great importance is given to the regularity of the march and passage of obstacles. For this purpose at least once a month a practice march is taken with complete war equipment. Normally the company moves at a walk, the trot is exceptional.

Firing instruction comprises three kinds of fire:

1. Individual fire;
2. Zone fire;
3. Continuous fire.

Individual fire consists of shooting off single shots from single guns and is employed exclusively in instruction. Zone fire consists of a series of about fifty shots directed from the same gun at the same target. It is used only in determining the distance to the target by means of firing.

Continuous fire is used in fire for effect and consists of the following methods of fire:

(a) Concentrated fire—"Punktfeuer;"
(b) Sweeping in azimuth—"Breitenfeuer;"
(c) Sweeping in direction of range (zone fire) "Tiefenfeur."

The first method is executed by aiming continually at the same point on the target. In this case the gun must be as immobile as possible.

The second method is executed by giving the gun a slow and regular oscillation from right to left of the principal line of fire, by means of moving the stock of the gun.

The third method is executed by raising and lowering the sheaf of fire regularly during the firing. This is accomplished by raising or lowering the front part of the pointing device.

A machine gun company can fight over any terrain where infantry can operate. It must always open up rapidly a very efficacious fire, which is made possible by the rapidity and versatility of its fire and its aptitude in covering a well defined zone systematically. It is possible for it to annihilate an enemy at short and medium ranges, but the result of its fire may be insignificant if the guns shoot with an elevation which is not exact and if the observation is not such that it can be rectified.

On the other hand, partly on account of the nature of the mechanism and partly because to the grouping of men necessary to serve the guns, machine guns are not adapted to sustaining a prolonged fire action. It follows that their action is intermittent. In order to obtain the greatest effect from this intermittent fire, these weapons should be used as far as possible as a surprise. Notwithstanding the precision of their fire, machine guns cannot fire over their own troops unless their positions dominate sufficiently the ground over which their own troops are operating; it follows that on a smooth terrain they will usually be pushed forward to the line of riflemen. In this case their movements must not attract concentrated rifle fire or artillery fire upon themselves before they are in position. Furthermore on a terrain with scanty cover, machine guns in dashing from one place to another, must not allow themselves to be distinguished from neighboring riflemen; the mobility of their matériel makes this possible. Normally a company is employed without splitting it up.

In going into action the guns and ammunition are unloaded from their carriages, preferably under cover, and hence transported to the position chosen by the captain. In the selection of positions the first consideration is the possibility of opening up an effective fire, then comes the question of cover. Nothing must be neglected in making the guns invisible to the enemy, and for this reason every fold of the ground is taken advantage of, and if necessary great resort to digging tools must be made as well as to sacks of earth. In order to insure a good preparation of the position, it is frequently convenient for the captain to bring up the chief gunners and pointers ahead of time; such a measure, however, is advisable only when surprise is not thereby compromised.

The unloaded wagons remain under cover, or seek cover rapidly. Whenever they have to stay in the open, they maintain the formation of column of carriages. In every case they must maintain the greatest possible order and hold themselves in readiness to move rapidly.

The chief of the wagon column (marshal) maintains the strictest discipline and keeps in communication with the company, to which he sends the ammunition and water he thinks are necessary and he causes the empty cases and water pails to be gathered up.

After the captain has posted the machine guns and decided upon the interval between them for the action, he indicates the target to the chiefs of section and then the process of estimating the distance with the eye or measuring it with the telemeter is begun.

The estimated or measured distance is verified by the fire of one section, because observation of the points of fall of the projectiles is difficult when the whole company is firing. For fire adjustment, sweeping in direction of range (zone fire) is employed.

The range having been determined, fire for effect is begun in which continuous fire is used. If then the range is found to have been accurately determined and the observation of the points of fall is easy, concentrated fire is used—if conditions warrant it sweeping fire is employed. Normally zone fire (*i. e.*, sweeping in direction of range) is necessary, especially against targets which require an immediate effective fire or one where observation is difficult. A bracket of 300 meters at long ranges and 200

meters at medium ranges is sufficient. However, during the firing, efforts are constantly made to cut down the length of the bracket by observing the effect produced on the target; but it must be remembered that a too great shortening of the bracket often causes grave errors.

Fire for effect goes on without limiting the number of shots fired. It must obtain the desired result in the shortest possible time and for this reason all the guns are employed at once; when the result is obtained the firing ceases immediately.

The length of the bracket depends upon:*

(a) The range.
(b) The kind of target.
(c) The precision of the means employed in determining the range.
(d) The conditions of observation of fire.

A proper elevation for a machine gun is one where one-third of the hits are short of the target; in every case zone fire is used against artillery and machine guns.

Sweeping fire is used against targets with narrow fronts if observation of results is difficult or if the wind blows from the side. In every case the machine guns should enfilade the enemy

*The general use of zone fire bracketing is characteristic of German machine guns. The regulations for Italian, French and Austrian machine guns on the other hand claim this method is exceptional, and only allow its being used by changing the elevation twice successively at the most.

General Rhone, as far back as 1902 (date of the creation of the first machine gun units in Germany), proposed the adoption of zone fire-bracketing in his articles in the Jahrbücher für den Deutsche Armee und Marine (nos. 88, 89, 90 of 1902). In the number for October, 1911 (the date of publication of the regulations in pamphlet form) he gave a resumé of his arguments and concluded by saying: "Zone fire is necessary on account of the smallness of dispersion of shots, hence a slight error in estimating or measuring the range would make the firing ineffective. The case is very rare when the exact determination of the elevation for the gun is determined at the start or a perfect observation makes possible a sure, exact correction in range. In practice we can exclude these two cases, since even if the telemeter is employed, and its exactness in war time is exceptional, it has an inherent inaccuracy of about 5 per cent., enough indeed to make us, even at medium ranges, rely upon the natural dispersion of shots to get any effect. The observation of hits, although easy on bare or sandy ground, and especially so if the enemy is on a slope, is in general very difficult and often impossible. If then we consider that errors of estimation of range by the naked eye are never less than 15 per cent., it will be easy to understand that, without zone firing, machine guns would be almost worthless in war, or at least until the problem of finding a telemeter, which gives quicker and more accurate results is invented."

if possible. Against artillery and machine guns protected with shields, it is the only way to obtain results.

It is essential to remember that the ammunition is limited, and that cartridges must not be expended except for a good reason, but when the resolution has been taken to attack an objective, it is imperative to use all the ammunition necessary to accomplish the results in the shortest possible time, because "insufficient fire cannot but raise the morale of the enemy." It is of the greatest importance to seize the opportune moment in which the enemy is most vulnerable or most menacing.

The captain must constantly bear in mind replenishing the ammunition supply, but he must be prepared to go without it. If at the moment when he is posting the company for action, he sees that the ammunition supply may present difficulties, he must then have the greatest possible quantity of cartridges brought along with the guns, making use of neighboring riflemen, if the case requires it.

In the course of the fighting, only constant cold-bloodedness and an acute initiative will permit the captain to grasp the propitious moments to open up an efficient fire and especially to stop the rushes of the adversary.

The captain must always have absolute control of the fire, which can only be obtained by perfect instruction and rigid discipline in the company.

The service of the guns must never be interrupted, either by casualties to the gun men or the commanders; at any moment the replacing of casualties must be prompt, for the handling of the guns must be quick and tempestuous.

In action the ability of the individual and the good example of all must always display that energy which is such an important attribute of duty.

The machine gun companies are an integral part of the infantry and for this reason their officers must have a thorough knowledge of the characteristics and fundamental principles of that arm and they must be well instructed in maneuvering in cooperation with it.

The disposition of the machine guns belongs to the regimental commander. He may retain control over the whole or a part of the company or he may turn it over to one of the battalions.

Machine guns must cooperate with all their might in obtaining

preponderance of fire and accompany the attack all the way up to the hostile positions. Frequently the moral effect of their fire by itself will facilitate the advance of the contiguous organizations.

Circumstances determine whether the machine guns should be posted at the same time as the infantry or later on with the protection of the latter's fire.

On account of their great consumption of ammunition it is essential that they be employed at effective ranges and against targets which are not on a much higher level. Dominant positions are particularly advantageous, for from them the fire does not have to be interrupted during the advance of their own riflemen. However machine guns can shoot through the intervals of the lines of skirmishers without much danger of hitting them.

In changing positions the cooperation of the neighboring infantrymen may be necessary in order to bring up ammunition.

During the assault the machine guns remain in their positions until the enemy's position has been captured. If opportunity is afforded for firing, it should be kept up until the charge takes place. If the enemy delivers a counter attack, the machine guns help the riflemen in checking it.

If the assault is successful, the machine guns hasten to the captured positions to repel any offensive returns and to pursue with their fire.

In defensive positions the guns choose their position and fortify it fully so that they can continue firing even during the assault; they need not be placed on the same line as the riflemen, for lateral or dominant positions offer special advantages.

In order to obtain a good flank fire, it may be expedient to place them in front, or on the flanks, of the principal line of defense.

If the defender expects a night attack, the guns are pointed and elevated before dark, so that they can sweep the probable zone of attack.

The enemy's defeat must be accompanied with fire action and he must be pushed mercilessly until he is completely shattered.

If a retreating enemy is within effective range, fire is opened on him, and if he goes out of range, every effort must be made to catch him again and crush him with artillery, machine gun and rifle fire.

Unless the fighting is at the shortest ranges, infantry cannot do much damage to machine guns unless it uses a great number of riflemen and ammunition in the attempt.

Machine gun fire can inflict heavy losses on hostile troops in the open at short and medium ranges.

In advancing against machine guns, it is necessary to take advantage of the folds in the terrain and of the pauses in their fire, which are inevitable with them in order to throw out irregular and surprising streams of fire.

When the infantry can no longer make such rushes, ground must be gained by crawling along. Flank or enveloping fire, even from isolated groups of riflemen, can have great effect on machine guns, if at short range.

ROMOLO AVANZINI,
Captain, 50th Infantry, Royal Italian Army.

Turin, Italy,
November, 1914.

Course of Instruction, School of Musketry, Ft. William McKinley, P. I.*

Fire Superiority. Target Practice and Musketry. The Laws of Dispersion. The Theory of Probabilities and its Practical Application to Musketry Instruction. The Main Elements in the Efficacy of Fire.

THIRTY years ago there was an awakening to the necessity of training in target practice, but in the conceptions of that time which brought about a great development of individual skill and perhaps exalted too much the individual shot there was little or no thought of teaching the employment of fire in action. It was supposed by those who gave any thought to the matter that that problem would somehow solve itself if a war ever came. Batchelor's Fire Tactics, prepared at the Leavenworth School nearly twenty years ago and for a long time a prescribed subject in the examination of officers for promotion, was an indication that something besides individual training was deemed necessary. While stating some important truths that book was vague, to some extent confusing to the minds of those required to study it, and there was nothing about it which could be given any useful application to the better training of the troops.

Progress in military art and a knowledge of the training methods in the best of foreign armies have brought us to a much better understanding of this phase of training and this notable assemblage of officers is evidence of the importance it has come to assume.

In addition to the regular courses for sergeants and company officers at the Musketry School at Fort Sill, special sessions for field officers are provided for in the scheme for the education and training of officers recently published by the War Department. While not a new thing in the educational systems of foreign armies, where even general officers are required to attend Schools of Musketry, this is probably the first instance in our own service where officers of field rank have been assembled for such a pur-

* Reprint from pamphlet, Philippine Department, 1914, by Col. George W. McIver, Infantry.

pose. The course has been prepared with a view of giving it the character of an observation course in musketry, as such courses for field officers are called in European countries.

The program conforms to the meaning of the word "observation." Nothing like individual practice in marksmanship being required.

It is desirable also that the meeting partake somewhat of the character of a conference concerning the subjects of the papers to be read. It is not unlikely that things may be said which are calculated to provoke discussion and it is through free but orderly discussion that we may learn what of the old ideas and methods we may safely discard and what of the new had better be accepted.

It has been said that theory and practice are twin brothers. Practice confirms theory and theory gives to practice a definiteness and purpose it could not otherwise possess. In accordance with this idea each day's lecture will be followed by one or more firing exercises designed to prove and confirm the theoretical principles set forth in the lecture. Not much that is new will be presented and nothing at all that is strange or sensational. For the most part ideas and theories are presented concerning musketry which are generally recognized as sound and correct, but some are of a debatable character. Some mathematical demonstrations and tabulations are included, but these are not to be followed or learned. Only the simplest computations, if at all, will be required and for those the methods will be clearly indicated.

In the new departure under somewhat inexperienced leadership there are sure to be some crudities and imperfections. Those designated as lecturers and demonstrators, aware of their own limitations, appear before you in those capacities with some degree of diffidence and ask for your patience and toleration of any mistakes that may be made.

Superiority of Fire.

War can never change its character. Its true essence is found at all times in the destruction of the live force on both sides. Modern wars have discovered no new element which can alter the essence of fighting. That lies today as it did a hundred years ago in fire effect—which has during the interval gradually increased with improvements in fire arms until it has now become the dominant force in all fighting, and of all the means of destruction

musketry fire stands supreme—infantry fire is the great destroyer. The statistics of all wars proclaim this supremacy. Fire superiority beats down the enemy's fire, destroys his resistance and morale and enables the attacking troops to close on him. An actual or threatened occupation of the enemy's position by an advance with the bayonet is necessary to defeat him. The bayonet assault is the way to finally press the life out of the enemy and the confidence of the soldier in his ability to use his bayonet cannot be too much promoted; but after all it is fire effect which makes the opportunity for using the bayonet. It should be remembered that the most brilliant courage will avail nothing against an obstacle which cannot be overthrown and it must be recognized that the bayonet charge is not the first but the final action in every encounter.

The importance of fire superiority is everywhere emphasized. The Drill Regulations state in paragraph 401, "To obtain fire superiority it is necessary to produce a heavy volume of accurate fire." Fire superiority is based upon killed and wounded enemies. The survivors, conscious of their danger and apprehensive of the fate of their disabled comrades, may take positions from which they cannot fire effectively, may fire wildly and hurriedly into the air or may run away.

The relationship of the elements involved in fire superiority may be illustrated by the algebraic expression $V=R\times N$ in which

V=Measure of volume of accurate fire.

R=Rate of fire per man.

N=Number of men or rifles employed.

It is obvious that V increase with every increase of R and N, but with a given extent of front there is a limit to N or the number of rifles that may be employed effectively, considerations of vulnerability forbidding the placing of one man behind another. The showing here made explains the almost elbow to elbow formation which the present regulations provide for—the provision being of special importance in those phases of an action where it is a question of gaining the superiority of fire. In such phases each side will endeavor to place a superior number of rifles in action, but it may often occur that two hostile bodies will contend upon equal terms in this respect so that the decision of the combat will depend upon the other factor—rate and accuracy of fire. It is obvious that the rate of fire should not be so high that there

will be a serious falling off in accuracy. A high rate of fire which is the result of lack of training or excitement is of course to be depreciated because this means unaimed fire and wild uneffective shooting, but when there has been systematic training in time of peace it is perfectly consistent to expect steady and effective firing in action. General Rhone states, "The leader who reduces the rapidity of fire in battle to save ammunition wastes lives and time; both more valuable than ammunition. Disabled soldiers are more difficult to replace than ammunition and lost time cannot be replaced at all."

The influence of the factor rate of fire may be illustrated by an example. Suppose two parties, "A" and "B," each numbering twenty-five men, encounter each other upon equal terms. The accuracy as expressed by the ratio of hits made to shots fired is also the same. Suppose this to be 8 per cent. "A," firing at the rate of ten shots per minute will make $25\times10\times.08$ or twenty (20) hits per minute: "B," firing at the rate of six shots per minute will make $25\times6\times.08=12$ hits per minute.

Assuming a normal distribution of the hits it is obvious that at the end of the first minute "A" has gained the advantage in a superiority and the number of rifles available against "B" and assuming a maintenance of the action on the same terms the double advantage now possessed by "A" will increase rapidly in the succeeding minutes until the breaking point of "B" is reached or its fire completely subdued.

An example will also show that even some loss in accuracy is admissible for the sake of the advantage to be gained by inflicting a greater loss in a unit of time. Suppose "A" reaches a rate of fire of twelve shots a minute, but loses somewhat in accuracy, making only 6 per cent. of hits while "B" maintains the same rate of fire and the same accuracy 8 per cent. In this case "A" will make in one minute's time $25\times12\times.06=18$ hits, while "B" will make $25\times6\times.08=12$ hits. A comparison of results again shows the advantage which "A" will possess over "B" due to a difference in rate of fire alone. These are merely assumed cases. I quote here the following tabulated statement of the actual results of a firing experiment at the Musketry School which exhibits very strikingly the relative effects of different rates of fire.

Ten thousand rounds were fired equally distributed between the ranges 300, 500, 800, and 1,000 yards.

The firing detachment was composed of men no better than average ability as marksmen and the targets used were olive drab silhouette figures placed in skirmish order, it being estimated that such targets had about two-thirds the visibility of bull's-eye targets.

Computations have been made to show in the last two columns the ultimate relative effect of the different rates, the advantage of the higher rates being made obvious. The influence of the time element in obtaining fire superiority will be illustrated if it be assumed that two hostile bodies of 100 men each encounter each other upon equal terms, one using the three-shot rate and the other the seven-and-a-half or ten-shots-a-minute rate.

	No. of shots	No. of hits	No. of figures hit	Accuracy expressed in %	Distribution %	Hits per minute by 100 men	Figure hit per minute by 100 men
3 Shot Rate...	2500	330	98	13.2	78%	39	9.3
5 Shot Rate...	2500	304	99	12.1	78%	60	19.8
7½ Shot Rate.	2500	290	98	11.6	78%	93	32.6
10 Shot Rate...	2500	257	84	10.2	67%	102	33.6

From the foregoing it is apparent that it is not alone the number of hits but the number of hits made in a unit of time which is of importance in gaining the superiority of fire. In other words, mere accuracy of fire is not sufficient. There must be accuracy in connection with rapidity. With this conception as a basis the aim of all individual training in target firing should be to bring the skill of the soldier up to the capabilities of the weapon as far as possible, not alone in the matter of accuracy but in respect to rapidity of fire. The same idea is expressed in paragraph 255 Drill Regulations, Infantry, which states, "Men are taught that the rate of fire should be as rapid as is consistent with accurate aiming."

The time element in efficacy of fire also suggests the basis of qualification in the various grades of marksmen. Accordingly a qualification course in timed fire was proposed by the board which prepared the 1913 Regulations, but the idea was rejected by the General Staff Committee which reviewed the work and so-called slow fire remains a prominent part of the individual qualification

course. Attention is called to the lack of agreement between the opening paragraph of the new regulations and the principles enumerated in the Infantry Drill Regulations. It is to be inferred from paragraph 1[1] of the former that it is only within the battle sight range that a high rate of fire will ever be employed, whereas a careful reading of the text of the Infantry Drill Regulations shows that there are six (6) other occasions not necessarily within the battle sight zone, where it will be necessary to use high rates of fire.

The committee of the General Staff responsible for the partial rejection of what seems to be a fundamental idea pertaining to service practice of all calibers and type, namely, the value of the time element in battle firing, expressed an old and still prevalent view.

The change from the muzzle loader to the breech loader was resisted for fear of too great a consumption of ammunition. The transition from the single loader to the magazine arm was opposed for the same reason and the same objection has been made to the adoption of an automatic arm for the Infantry. Notwithstanding the cost of rearmaments, the latter change now imminent appears to be dependent only upon the attainment of reliability of the automatic mechanism regardless of the apprehensions of the timid and conservative regarding the ammunition supply. The history of the progress of military firearms in the past fifty years exhibits plainly, along with improvements in ballistics, the tendency towards increased rates of fire in battle. If this were not an end to be desired and sought, and if there were some special and peculiar virtue in a slow delivery of fire in action, the contrary tendency would have been shown and the musket of today would be so patterned as to make it impossible for a soldier to deliver more than one or two shots per minute. From a mechanical standpoint this would be entirely practicable. So far as the individual is concerned, the limitations as to rate of accurate fire are dependent partly upon the mechanical construction of the piece and partly upon the manual dexterity with which the operations involved in loading, aiming and firing the piece are performed. Training and practice improve manual dexterity and

[1]The course of instruction in rapid fire is therefore drawn with a view to enabling troop commanders to deliver the most rapid fire possible, consistent with a sufficient degree of accuracy, upon targets exposed within the ordinary ranges of the battle sight. (Par. 1, S. A. F. M.)

shorten all the operations involved, but the process of aiming cannot be too greatly shortened, each aimed shot requiring from three to eight seconds, according to the visibility of the objective. There may be too much deliberation in aiming; it being well known that a prolonged aim produces unsteadiness. It has been said that twenty-five aimed shots have been fired with the present model of rifle in one minute's time. This exceptional performance is one which average soldiers cannot be expected to attain or approach even with a great deal of practice. On the other hand, a new recruit entirely unskilled in the use of firearms will through imperfect and clumsy handling attain a rate of not more than three or four well-aimed shots a minute. Between these two extremes there appears to be an intermediate rate, suited to the capacity of average men and attainable by them with training and practice. Such a rate which might be termed the most useful rate of fire, adopted as a standard, provides a basis for training the individual and through such training the soldier becomes fitted to do his part in gaining the superiority of fire by delivering "the greatest volume of effective fire possible."

A suitable rate cannot be fixed arbitrarily but is a matter for experimental determination, not with specially trained men but with men of average ability and under average service conditions as far as the latter can be reproduced. The tabulation showing the influence of different rates of fire is one of many experiments undertaken to determine the best rates of fire. The rates chosen were ten shots a minute at short ranges, five shots a minute at ranges from 800 to 1,000 yards, and seven or eight shots a minute at intermediate ranges. These rates provide a more or less adaptable standard for judging the results obtained in combat firing exercises.

They are probably somewhat too low. Frequently in service firing, higher rates are admissable and proper. On the other hand, at targets of low visibility, somewhat lesser rates may be demanded, the adherence to the habit of using aimed fire only determining the rate for well-trained men in all cases.

Accuracy or the production of a small-shot group and the dexterity required in the delivery of the most useful rate of fire are therefore the essential things in the marksmanship training of the individual soldier.

The conclusions that have been stated concerning rates of fire

do not agree with rates recommended in the Drill Regulations, Infantry. Five or six shots a minute at close ranges and three or four shots a minute at longer ranges. Within the last few years great attention has been paid in the principal foreign armies to training in rapidity of fire, the standard rates for short ranges being twelve or even fifteen shots per minute.[2]

Practice at ranges beyond 600 yards is inadvisable for the reason that the errors due to change in wind and light conditions are greater than the individual errors in holding and aiming, the soldier's effort to obtain a close-shot group being neutralized by external influences over which he has no control. It is well known that skill in firing at 1,000 yards at rectangular targets is a question for the most part of judging the wind and light conditions and of making very delicate sight adjustments. These technicalities can have no possible application in service firing, where the range will usually be unknown and the indication of the point of impact will be either very faint or altogether lacking.

This subject would be incomplete without reference to the psychological element in marksmanship training. Habit is strong and it is well known that men who are under the influence of the emotions of battle automatically or without the intervention of effort and frequently without consciousness perform those actions which have become a fixed habit through frequent repetition at drill and in combat exercises. The utility of target practice may be judged by the extent to which it promotes in the soldier the habit of using aimed fire only. Any target practice system is effective in the main which attains that end and this habit or quality as much or more than any other one attribute marks the reliable soldier.

A high degree of skill as a rifleman naturally brings that kind of self-confidence which may be so well employed in building up

[2]A British soldier who has seen seventeen years' service, including that in the South African War, describing the effects of British musketry fire on the Germans, said that the success of the former was due to the extra pay for marksmanship which the men are given.

"Our men are constantly practicing for what they call the 'mad minute,' and you will find them in their barrack rooms getting up speed in aiming and pulling the trigger. When the tests for musketry are on each man must fire fifteen rounds per minute at a target, making a high percentage of hits, or he will lose from threepence to sixpence a day for a twelvemonth. Nearly all are so expert they can charge and fire without coming down from the shoulder. When they meet the Germans in massed formation and give them ten 'mad minutes,' there are not many of the enemy left, even when they are in overwhelming numbers."

the morale of a body of troops. This is an additional consideration which tends somewhat to justify all the time and effort we can afford to employ in making good marksmen. However interesting or satisfactory success in this line may be, we should not, as was once the case, overrate its importance and be blind to the necessity of giving proper instruction to commanders and leaders who must learn from experience how to direct and control fire. What is required is a well-balanced scheme.

That individual skill may be utilized for tactical purposes by commanders and leaders, fire discipline is required.

This is also a matter of habit, the result of frequent practice and much training.

The necessity of this quality is so obvious that it need not be dwelt upon here. Its acquirement pertains less to the technique of firing than it does to tactical training.

All that has been said so far pertains to the individual; but the training of the individual is not everything.

It is necessary to extend the instruction to the various units so that they may all become manageable instruments capable of understanding orders and executing them. It remains, therefore, to educate those who must command these units. It is unnecessary to instance how helpless are any troops in the inevitable surprises and developments of the modern infantry fight unless all the leaders are endowed with quickness of thought and mobility of mind.

The prompt solution of questions likely to be encountered will arise in the mind only when there have been numerous exercises in time of peace. Collective firing exercises with ball cartridges at targets representing an enemy provide a means for such instruction. These are called field firing or combat firing exercises which, when properly arranged and conducted, provide a means whereby a judgment may be cultivated in leaders which will make them equal to any emergency likely to arrive in service. We have here an adapatation of the applicatory system of instruction, the leader being confronted with a definite situation calling for a solution not to be arrived at through any formula or regulation, but which must spring from his own professional knowledge and judgment.

Combat firing is made the subject of a separate lecture and it

is mentioned here merely to introduce the subject of efficacy of fire.

The measure of efficacy of fire is dependent upon the time of execution; the accuracy, or ratio of hits made to shots fired and the distribution or number of targets hit.

In a well-distributed fire there is a certain relationship between the number of hits or accuracy and the number of targets struck so that ultimate effect may be expressed or measured by the number of targets hit in a unit of time.

In carrying on any instruction there must be proper standards. They are necessary in academic work, in the school of the soldier and of the higher units. In fact, in all effective tactical training standards exist and are constantly applied. All instruction is an effort to eliminate error and bring faulty performances up to certain more or less well-defined standards. So it is in collective firing exercises there must be a ballistic standard in order that we may judge whether a given performance has been good or bad.

Take the case of a simple firing exercise in which a platoon of twenty-four men fires ten shots per man at a row of kneeling figures placed at a range of about 600 yards from the firing point. There are probably very few here who would feel the confidence to announce offhand whether the results obtained in a given case were good or bad in respect to the elements of time, accuracy and distribution.

In the case of the individual soldier, experience on the target range has given to most of us a fairly good conception of what a good shot can be expected to do in firing at rectangular targets and this makes a standard for individual instruction in range practice.

For the construction of a ballistic standard for use in collective firing exercises we might resort to empirical means, but a more reliable and convenient dependence is to be found in an application of the theory of probabilities or doctrine of chances in connection with measured dispersions. It is known that if a body of soldiers fire a series of shots with the same sight setting and a common aiming point owing to various causes the trajectories will not all follow the same path but will be more or less divided, the trajectories taken together forming a horn-shaped figure usually called the cone of dispersion. If the shots so fired be intercepted

by a vertical target normal to the direction of the fire, the points of impact taken together form a figure called the shot group or diagram of hits.

The space covered by the intersection of the cone of dispersion with the natural surface of the ground is usually called the beaten zone.

In the diagram of hits the shots appear as most thickly disposed about a middle point called the center of impact and from this point in all directions the density of the grouping decreases, at first gradually, and then more rapidly out to the limits of the group.

The arrangement of shots in the diagram of hits, apparently regardless of any rule, is in fact in conformity to a law which does not exhibit itself until after the delivery of a large number of shots. If measurements be made of a given shot-group, the wild shots being disregarded and the mean horizontal and the mean vertical dispersions be found, these measurements will in effect be statements or indexes of the law of distribution for that particular group. A horizontal strip of the width of the mean vertical dispersion and symmetrically placed with reference to the center of impact will contain 50 per cent. of the hits in the group.

If the mean vertical and mean horizontal dispersions pertaining to riflemen of a certain degree of skill be determined for different ranges,—a large number of shots being considered, means are afforded by which in connection with a table of probability factors there may be computed the probable number of hits to be expected in collective firing by shots of the same degree of skill at any range on targets of any size.

By such means a suitable standard may be constructed and the results obtained in combat firing exercises judged accordingly. With an established standard of judgment and a correct appreciation of the conditions which affect shooting under service conditions, effective criticism which is the basis of good instruction may be realized.

About 1910 at the Musketry School at Monterey, Cal., the work was undertaken of finding by experiment the measures of the dispersion of good and average shots, using the present model of musket with the 1906 ammunition. The firing was done by about 800 men of the garrison of the Presidio of Mon-

terey and about 30,000 rounds were fired. Shot groups were made and measured at each of the ranges 100, 200, 300, etc., up to 1,100 yards. For each hit two measurements were made. The measurements and the subsequent computations made a task which occupied about three months of steady work. The results obtained are shown on page 19, Standard for Field Firing.

I call attention here to the difference between the dispersions thus determined and the German dispersions quoted in Capt. Eames' book, "The Rifle in War," which are shown to be less by about one-half. This might indicate better marksmanship or superior ballistic qualities or both; but I believe the difference exhibited is due to a difference in procedure. In the experimental firings at Monterey to determine dispersions, the firing was done by detachments firing at word of command as in combat firing and with sights set exactly for the range. In the German experiments it is understood that the firing was done individually with great deliberation, sight corrections being allowed.

Let us now see how the dispersions that have been determined for our own service may be made use of. Suppose a detachment in firing have as an objective the bottom line of a target, each man aiming at the lowest line of the strip at a point opposite to him instead of all aiming at the lowest point of a bull's-eye. It is obvious that the resulting group will show a distribution of the hits along the entire length of the strip; but the arrangement of shots in the shot group will follow the same general law in respect to the vertical dispersions and this circumstance permits a computation to be made of the number of hits to be expected from shots of a certain grade on strip targets of an indefinite length. Assume a strip target 3.5 feet high or the height of the kneeling silhouette figure and of an indefinite length and that average shots at a range of 600 yards fire at the strip target in such a way that the center of impact lies at the middle line of the strip. The mean vertical dispersion at 600 yards for average shots is 4.88 feet. $3.5 \div 4.88 = .71$. Looking for this number in the table of probability factors the corresponding percentage is found to be 37.0, which is the percentage of hits to be expected on the strip target under the assumed conditions. To go a step further suppose in place of the strip target we have a row of twenty-four kneeling figures 1 yard apart from center to center. These figures will receive hits in proportion to their vulnerable area, which,

according to a simple computation, is found to be 43.8 per cent. of the rectangular strip enclosing the figures. The number of hits to be expected on the twenty-four silhouette figures under the conditions before stated will, therefore, be $37.0 \times 43.8 = 16.2$.

This result is dependent upon a perfect fire adjustment, the center of impact at the center of the target. This result will not usually be obtained. Something less is to be expected as a rule owing to the displacement of the center of impact. Suppose the center of impact be so displaced that it falls on the bottom line of the target, then by similar processes the percentage of expected hits will be $33.2 \times 43.8 = 14.5$ per cent.

As a rule, when the range is well known and the targets have good visibility, the results should be somewhere between these two percentages.

It is the rule to count ricochet hits, since these have a positive value in service. On ground such as we have here we may expect that about 15 per cent. and possible 20 per cent. of hits made will be ricochets.

Allowing this increment 15 per cent., we have 18.6 per cent. and 16.6 per cent. as the maximum percentages to be looked for in the first firing exercise today. These percentages will be made if each man aims correctly and fires steadily at the proper objective. Carelessness in aiming or lack of understanding as to the proper objective will cause a falling off in the results in proportion to the seriousness of the errors committed. A distribution of the hits is desirable in order that as many enemies as possible may be disabled.

In the case of a lineal target composed of silhouette figures where each soldier of the detachment fires at that element or portion of the target in his immediate front there is a relationship between the accuracy or number of hits and the number of figures that will be hit.

Suppose on a group consisting of twenty-four figures, twenty-four hits are made. It is not to be expected that all the figures will be hit. On the contrary, it is quite certain that several will escape being hit. The relationship is shown in Standard for Field Firing Table IV, the method of application being explained on page 10. Taking the case of twenty-four hits on a group of twenty-four targets, the ratio of hits to targets is 1, which corresponds in the table to a percentage of 63.2. This means that 63.2

per cent. of twenty-four figures or fifteen figures should have been struck.

Suppose thirty-six hits were made in a group of twenty-four figures. In this case the ratio of hits to figures is 1.5, which corresponds to a percentage of 77.7. This number multiplied by 24 gives 18, which is the number of figures which should be struck. In this way, standards in distribution may be worked out corresponding to standards in accuracy.

With all that has been said it is not meant to imply that there will be a close agreement with the computed percentages in every case. Occasional departures will be noted, especially when a small number of shots is fired.

The application of standards designed for purposes of instruction must vary. A too rigid application cannot be insisted upon. In all cases where it is a matter of passing on the merits of a combat firing exercise, individual judgment must come into play and numerous modifications and allowances be made to suit the particular circumstances of the case.

The Oldest Maxims of War[1]

No. 38 of the *Zeitgeist* (1914) contained a translation from Sanscrit of the description of the battle, No. 51, the description of two other battles of ancient times, and in this number, the attention of our readers is directed to the oldest known attempt to formulate and lay down the great principles of the art of war.

After the astounding victories of Frederick the Great in the three Silesian wars, victories which were ascribed largely to the masterly application of the teachings of the ancient military writers, everyone, notably in France, threw himself diligently upon the study of Xenophon, Polybius, and Vegetius. Ceasar was attacked by many and the military improbability of his "Commentaries" pointed out. Everybody began to recognize that while technical inventions made in the armies of the various nations had since the earliest times brought about great changes in organization, armament and tactics, the principles of strategy had remained unchanged, as they were based largely upon fixed geographical lines whose relative importance fluctuated with the position of the belligerent forces. A profound sensation was created when the son of the famous Marshal Puységur published, with comments by himself, the MSS of the Jesuit missionary, de Guignes, in order to prove the immutability of the laws of strategy and of the psychology of war (the *"coeur humain"* of Marshal Saxe). De Guignes had translated into French in 1767, the five holy war books of the Chinese. These books contained the maxims of the leading Chinese commanders who lived between the twelfth century B. C. and the fifth century A. D., maxims which, even as late at the eighteenth century of our era, every Chinese scholar and officer had to memorize. Thus it became apparent that, centuries before the time of Homer, war was already waged according to fixed rules, and that even in ancient times strategy was an art and the art of war was taught.

Since these Chinese maxims seem to be unknown even in military circles, although Napoleon recommended their study, and since many of that great general's maxims may be traced to them,

[1]By Oskar Fritz (Berlin). Translated from *Der Zeitgeist, Beiblatt zum Berliner Tageblatt* of February 8, 1915, by W. Krueger, first lieutenenant, 3rd U. S. Infantry.

I have translated extracts from the regulations laid down by the earliest of Chinese generals of whom we have any knowledge—Loutao. It is remarkable that the maxims of Frederick the Great should have been enunciated 3,000 years before his time, and that the principles of Hindenberg's strategy and tactics should have been likewise laid down at that early period.

THE WAR MAXIMS OF GEN. LOUTAO.

(About 1150 B. C.)

There are four things to which a general must give careful attention, (1) time, the establishment of his reputation; (2) place, he must be familiar with the country in which he operates; (3) opportunity, which, if he is skilled, he will be able to create; (4) the condition of the troops as regards strength, ability, and morale.

War should be so conducted that one need not wage it again for the same cause. Those who master the true principles of the art of war will be able to subsist their armies at the expense of the enemy.

An army should be so disposed that all the corps of which it is composed can mutually support and defend each other whenever requisite.

The troops in the right wing and those in the left must fulfill for those in the center the same function that the wings of a bird fulfill for its body. Its wings impart to the bird the ability to pass quickly from one point to another and enable it to move in any direction at will. The troops posted on the right and those posted on the left should enable a general quickly to make any disposition of his army that he may see fit.. The mobility and strength of birds is generally proportionate to the size and strength of their wings. This should likewise be true of an army. The two wings of an army should be composed of the most mobile, the best disciplined, the most experienced troops.

If you desire to profit by your army, if you wish to make it invincible, model it after the snake *Chouaijeu*, which, when struck on the head, instantly brings its tail forward to defend its head; when struck on the tail, the head is ready to defend that appendage; when struck on any part of its body, head and tail combine for the defense of the part attacked. But someone may

perhaps question whether this can be done with an army, and I answer, it can, it should, and it must be done.

To post an army in order of battle is not a difficult matter, but it is difficult to fight without deviating from the original plan that was decided upon.

A strong and well-disciplined army should not waste its time in hesitation, in raids, or in small engagements, which never lead to decisive results, but should, as soon as possible, engage in pitched battle.

The corps should not all attack simultaneously at the outset of a battle. If they did, confusion and disorder would inevitably occur and defeat would be the result.

The troops must be well instructed in all the details of their work; they must be commanded with firmness and rewarded with glory. Make gallant deeds count, glorify them. This is the easiest way to flatter men, encourages them, and spurs them on to great deeds.

Do not await orders from your princes when you are placed in a situation that requires a prompt decision. In cases where you must act contrary to an order, do not hesitate, but act, and act without fear. The first and foremost desire of him who placed you at the head of his troops is that you defeat the enemy. Had he foreseen the situation which confronts you, he himself would have prescribed the action that you propose to take.

A good general should never say that he will do a certain thing, come what may, for his course of action should be determined solely by the situation.

The renowned generals of the past believed that in order to gain victory, the troops would have to demand to *fight* and they were equally certain that these same troops would suffer defeat if they insistently demanded *victory*.

If your army is approximately equal in numbers to that of the enemy, nine of the ten advantages of the terrain should be on your side. Employ all your mental resources, all your physical efforts, all your diligence in obtaining them.

Before you enter upon the decisive battle, you should have foreseen it and have prepared for it long in advance. Do not let accidents decide your action in this case.

If a general is all that he should be, he will be able to distinguish what is great from what is small, what is strong from what

is weak, what is insufficient from what is superfluous, what is difficult from what is easy, what is obscure from what is obvious; he will always know how to dispose the three brigades, five divisions, or two corps, without confusion, as the situation, the time, and the terrain may require.

The leader of an army must possess the ability of making such dispositions of his own army as to dictate the enemy's conduct, movements, and disposition.

The great art of generalship consists in keeping the enemy constantly in the dark, so that he will never know where he may have to give battle.

It may be said in general that an army that is strong in numbers is a strong army, but it may be said with equal propriety that an army that is too strong numerically is difficult to subsist, to dispose, to lead, to move, and to keep intact, and that the strength of an army depends less upon numbers than upon efficiency.

In a campaign, one must take care that both animals and men are well fed.

The commander-in-chief should keep a part of his cavalry under his own orders to support those who need prompt help in order that they may not be defeated.

When the proper moment arrives for beginning the battle, the cavalry should fill the air with the noise of its instruments, with its cries and the neighing of its horses. The general should attentively watch this first attack. From the conduct of his own troops and from that of the enemy he should draw conclusions as to whether any of his disposition ought to be changed.

Not only those who command, but also those who obey should devote their principal attention to the manner of assembling, forming ranks, advancing, retiring, attacking, defending, in order that the commander may never issue inappropriate orders that are not in accordance with the time, the place, and the situation, and that subordinates may quickly and intelligently carry out anything that may have been ordered.

The best arms and tactics are those that enable us to attack the enemy while, at the same time, they permit us to defend ourselves against his attacks.

Whenever troops march or execute maneuvers of attacks, they should be as mobile as birds. If they have to hold a position, they should stand as firmly as if nailed to the spot assigned to them. If they fight, they should support and follow each other just as

do all the felloes and other parts that constitute one and the same wheel.

Dust, the flight of birds and their cries, serve to indicate the march of the enemy, though one may neither see nor hear him.

Information of all movements of the enemy, and even of matters that happen within his lines, must be obtained, in order that one may draw conclusions as to his probable conduct. But if the condition of the enemy is not known, what must be done to obtain information of it? The hostile camp must be attacked with a selected detachment. By the manner in which the enemy repulses this attack one may see whether it is profitable to attack in force or not.

Feed your horses well and conserve their strength for the moment of battle. If you follow this advice, you may, if need be, ride over the entire world on those same steeds.

If you believe that you should not risk battle, do not fight, even though your orders direct you to give battle. When, on the contrary, you see that a battle would be advantageous to you, then fight valiently, although your sovereign may have ordered you not to accept battle. Neither your life nor your reputation will be risked in this case, and you will not be guilty of crime against him contrary to whose orders you have acted.

Do not go to sleep after an initial sucess and do not allow your troops an untimely period of rest. Do not dream of reaping the fruits of victory until the defeat of the enemy is complete.

If you have far to go, march day and night. Surprise the enemy when he still deems you ten miles away. Do not let the chance to attack escape you with the excuse that your troops need rest. An enemy that is surprised is half defeated.

In forced marches, the troops must, whenever possible, take their nourishment without halting, or, at the least, halt for that purpose for the shortest possible period only.

Gain an acurate knowledge of the country. When going into battle, keep the wind and sun at your back, if possible.

If one wishes to make a night attack, one must place gags over the mouths of the men so that they cannot yell, and a strap in the mouths of the horses so that they cannot neigh.

If the enemy is in the act of crossing a stream, do not attack him until half of his force is across.

Music and trumpets must speak to the ear, flags and standards to the eye, rewards and punishments to the heart.

Efficiency in National Guard Companies*

MR. PRESIDENT and Brother Officers:

When our president assigned me this subject for a paper, he gave as his reason, that my company was the only one in the State to receive a mark of "excellent" at the last inspection. That, however, does not put me in a position to answer why. The most I can do is to give an outline of the methods followed by company, to increase its efficiency. Furthermore, I do not wish it understood that these methods are in any case specifics for the cure of the ills with which all our companies are more or less afflicted and I have no doubt that many company commanders have schemes of their own that are probably much better than the ones I have to offer.

Before considering how to maintain efficiency, what do we consider efficiency? I should say that in the National Guard it should mean a fair knowledge of close order drill, bayonet exercise, a thorough knowledge of extended order by signals, good fire discipline and control and a general average of fair shooting ability of the entire company. Without the latter we may have a company that would make a fine showing on drill and parade but with about as much value as a carpenter who did not understand the use of his tools. We should bear in mind that the ultimate end of a soldier's training is his use on the battlefield and if he cannot shoot straight his value is considerably lessened. Musketry training combined with training in fire discipline and fire control, is to my mind the great essential, and one is just as important as the other.

The men of the company should be taught personal hygiene, a little signaling, first aid, position and aiming drill, nomenclature and care of the rifle, patrolling, and if there is any time left out of your two hours per week, tent pitching. Now in order to teach our men these things, we must have their attendance at drill. Ah! you say, there is the rub. Very true, but every company has a certain element that will always be present if the instruction is made sufficiently interesting, another element that by a little judicious handling can be induced to attend a fair per-

*An address delivered before the 1914 convention of line officers of the National Guard of Minnesota.

centage of drills, and still a third element that will not attend any drills if they can avoid it. To secure the attendance of this latter element I have in my company what is known as the "Booster Committee," composed of the two lieutenants and a number of noncommissioned officer and privates. This committee handles the delinquents in this manner: An accurate record is kept of all unexcused absentees and when a man has been absent twice without a reasonable excuse, he is sent a card ordering him to report to the company commander and explain his unauthorized absence. If he repeats the offense he is called before the committee and if his excuses (after investigation) are considered insufficient, he is given the choice of a fine or standing trial for absence without leave. This treatment is generally sufficient and it is very seldom that a man has to be called before the committee a second time. I have tried just one man in the last three years and he got all the law allowed and his case has acted as an excel lent example to others. All this means that the company commander must work hard, his lieutenants a little harder and the noncommissioned officers still harder. Having by these means or others secured the attendance of the men, the next thing to be considered is their training.

To properly train a company you must first of all have well instructed noncommissioned officers, capable of imparting their knowledge to others. The first year I was a company commander I followed the time honored system of selecting my noncommissioned officers by a competitive examination, but after watching them make a mess of instructing recruits, I decided that that method would not do if I expected to get results. To overcome this condition I established a school with my first lieutenant as instructor, to train privates to become noncommissioned officers, and to be eligible to appointment as corporal, the candidate must be a graduate of this school. The course covers drill regulations, small arms firing regulations, guard duty, signaling and in fact covers everything that a noncommissioned officer should know. The commands and explanations are all given by the student, and their methods of command and explanation worked up to the standard desired. When this course is finished the students are almost without exception, good instructors. All the corporals in my company are graduates of this school. Also, seven privates whom I often use as squad leaders and instructors. I find too

that it has stimulated the sergeants, who did not have the advantage of this school, to harder study, and a strong desire not to be caught napping by these educated corporals. The graduates of this school are also expected to attend noncommissioner officers' schools. In these schools I give most of the time to one sided map maneuvers covering patrolling of all kinds, outposts, advance, flank and rear guards, defensive positions and attacks, finishing the school season with two or three small war games. These map maneuvers serve to teach in a practical way both map reading and field service regulations. All the noncommissioned officers are also required to study the Marine Corps score book, so they can act as instructors of musketry. Having covered the methods pursued in the development of the instructors we will now consider the training of the company as a whole.

I always have a program covering each evening's work and would call your attention to the very comprehensive one issued by Maj. Arthur Johnson when he was our inspector-instructor, also the circular recently issued by the D. M. A., both of which are excellent. I try to make each evening's work as varied as possible, covering close order, extended order, bayonet exercise, position and aiming drill all in one evening, using about forty-five minutes for squad instruction and the balance of the company, using corporals, sergeant and lieutenants, as instructors. The extended order by company is done by signals entirely and about once a month I give the entire company a ten minutes school in signals. I find that an excellent way to secure good fire control is by using blank ammunition. In these exercises I also use groups of targets, olive drab in color, prone, kneeling and running figures. These targets are fastened to the floor and can be made to appear and disappear by pulling a string. By assuming features of terrain and placing the targets appropriately, little problems of attack and defense can be worked out on the armory floor. The targets are small and hard to see and every man in the firing line is on the alert at all times not only watching the place where the target last appeared but all likely places where one might appear. These exercises develop a splendid individual fire discipline, the firing ceases as soon as the targets disappear. In attack problems we assume that fire superiority has been obtained and an advance may be attempted when half of the targets in the hostile position have disappeared. Rear guard actions can

be splendidly illustrated by the use of these targets, arranging them in such a way that they represent attempts at development and forcing timely withdrawals and mutual support by platoons.

The exercises with blanks serves another purpose, the cleaning and care of the rifle. When the firing problem is finished, one squad is sent to clean their rifles under the supervision of a sergeant and the squad leader, while the other squads are instructed in something else until their turn comes to clean rifles. This winter I intend using the sand table in connection with the firing problem.

I encourage the sergeants to specialize in some one subject, without sacrificing their study of other subjects and then use them to instruct the entire company in their specialty.

I claim no originality for these methods, as a number of them have been suggested to me by my officers and enlisted men, as I have made it a point to encourage suggestions for the betterment of the company, by its members.

Editorial Department.

Preparedness for National Defense.

While public discussions of the "military situation" by the service is not encouraged and may possibly be fraught with evil consequences in certain respects, it is none the less gratifying to find that safe and sane views as to the preparedness of our country for defense are receiving such forcible expression from our public speakers and from the press that the public faces the grave emergencies that may arise in the immediate future with a full knowledge of what may be involved in the conditions that now confront us. If we fail to take cognizance of existing conditions, it will not be because our sins of omission may be imputed to our ignorance, nor to the want of adequate warning from those whose position should secure for them the serious attention of the American people.

Before the recent Lake Mohonck Peace Conference, Secretary Garrison warned his hearers that

a nation to deserve preservation must be sane, just, righteous, self-respecting and courageous. Since it only obtained those virtues by conflict of one sort or another, it can only retain them and thus insure its own preservation by being prepared in every proper way to defend them from the inevitable assaults which will be made against them. The real problem of national defense is how to get the people of this country to look the fact squarely in the face, deal with the situation as it actually exists, and definitely make up their minds as to how it shall be handled.

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Right thinking people the world over have for centuries deprecated war and its evils; and if these evils could have been abolished by the simple process of refusing to think of them, that process would, by this time, have had world-wide application. Sensible people, however, realize the impossibility of so simple and easy a solution of this as of other similar distressing conditions of individual and national life. No; turning aside won't do —it not only will not prevent the calamity, but will also serve to make its effects more disastrous if and when it does come. If we would respect ourselves and deserve the respect of others, and have that courage without which man is useless, we must not

shrink from or shirk our problem because of any of its repellent or repulsive features.

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Our lack of aggressive intention and our righteous intentions minimize the sources and causes of war. But we ourselves have frequently been at war; our isolation has not as a fact assured our freedom from conflict; and other nations relatively as isolated have been involved in war; and no sound reason can be adduced which would justify a sane man in concluding that isolation alone spells safety.

Self-respect, without which man is an invertebrate animal, requires that we should be prepared to protect that which we cherish, which not only includes our material possessions, but that intangible something which makes us a distinctive nation in the eyes of the world. Someone has very finely said that it does not matter so much what happens as the courage with which you face it; and very often the consequences of conflict, abhorrent as many of its incidents are, have brought forth some fine, hitherto undeveloped strain in a people and made them worthier to contribute to the progress of civilization.

Among those things which the National Government must provide, among those things which the founders of our republic decreed should be provided by the National Government, is the common defense. Whatever, therefore, is necessary to provide for the common defense, must be done at whatever proper cost. The individual citizen surely does not feel, in those aspects of this matter which come most closely home to him, that such expenses are unwarranted.

There is no identifiable return for most of the expense of government which we recognize as necessary, but not more so than the expenditures for public defense.

I can and do entirely sympathize with every sane and sensible movement that tends to abolish conflict and to insure peace; but I am utterly out of sympathy with the idea that we should neglect or postpone consideration of what is now the existing condition, because of a hope or belief or even conviction that it may be altered, even radically altered, in the future.

Hideous as is the face of war, abhorrent as are the evils consequent upon it, its results in the long run cannot be so fatal to a nation as would be the failure of that nation to courageously and fearlessly ascertain its duty and do it. The former, terrible as they are, are evanescent and can be repaired; the latter eat into and consume the very sources of virtue and destroy the national life at its core.

Treating further of the same subject in the June issue of the *North American Review*, Secretary Garrison says:

They, however, who deprecate the taking of these precautions and the making of these preparations urge still further opposition

somewhat akin to that just disposed of. They say: "If you are strong enough to fight, you are more likely to fight," or, stated in the negative, "If your nation is not prepared for war, your nation will be less likely to be involved in war."

To be perfectly frank, I cannot perceive the slightest basis in reason or fact for such a contention. Where in the realms of spiritual or physical life do those who urge this contention find any basis for its soundness? Do the things which we call evil refrain from assaulting the weak, the flabby, and the feeble? In the physical sphere, where and when have feebleness and flabbiness and weakness acted as a shield and buckler? Where in the history of nations do we find the strong staying its hand because of the feebleness of its rival? The pages of history literally abound with instances to the contrary. Civilizations which in their day reached the highest pinnacles of mental, spiritual and physical life have disappeared from the face of the earth, and their names are almost forgotten by men, because they became feeble and flabby and were toppled over by the strong. Inanimate nature and human nature progress by the survival of the fittest, and they who are weak and flabby are not fit. If by this suggestion those who entertain it mean, as they would seem to mean, that the strong are more likely to use their strength than the weak, and that, therefore, a strong nation is more likely to go to war than a weak nation, let them frankly say so and be prepared to answer the obvious question which then arises. That question is, How do you justify your trust that other nations which are strong will refrain from misusing their strength against us, if you fear that we, if strong, would misuse our strength against other nations? There is no basis for any such unjust animadversion against our nation and our people. There is no better test of real strength than self-control. If we cannot trust our own strength and our control of our strength, if we cannot trust ourselves not to misuse our strength, how much reliance should we, as sensible men, place upon the conduct or other nations which are strong?

No; that idea cannot find permanent lodgment in any reasoning mind. If the only reason that we should not prepare such strength as may be necessary to protect ourselves is because of a fear that we may be tempted to misuse it and may in fact do so, it were better to run that risk than the risk of defenselessness against the strength of others, which is just as likely, on this theory, to be misused against us.

We have been viewing this last objection solely on its negative side; but upon its positive side there is just as much against it, and more, which needs consideration. The Hebrew Scriptures tell us that righteousness exalteth a nation. Whether justly or not, we firmly believe that we are a righteous nation—that is, that our intentions are toward the right. We certainly intend no ma-

rauding aggression, and entertain no covetousness, against that which belongs to others. But righteousness is not universal in either the spiritual sphere, or the individual sphere, or the community, or the national or international sphere. Righteousness is not self-executing. If it is to prevail, the unrighteous must be overthrown; and whenever injustice and unrighteousness take up arms to impose their will upon the just and the righteous, the latter must be prepared to withstand the assault and to prevail, if they are to survive as moral forces in the world.

Peace—yes, peace based upon righteousness. But in the spiritual and the personal and community life there will always be conflict of one sort or another so long as there exist the two contending forces of righteousness and unrighteousness.

Government without force is unthinkable until unrighteousness is abolished from the earth and mankind has ceased to be subject to the present forces of animate and inanimate nature. Until that day comes, however, mankind must fortify and strengthen itself to withstand the assaults which it must inevitably expect, both spiritual and physical.

Before the same conference President Hibben, of Princeton University, spoke, in part, as follows:

The proposition which I would urge upon your thoughtful and tolerant consideration this morning is this—that the policy of a wise preparedness of our military forces in the United States is not incompatible with the great peace movement which this gathering represents. I do not advocate preparedness for war, but a preparedness against war—a preparedness which in the event of the catastrophe of war itself will prevent the enormous initial sacrifice of human lives which has characterized every war in which the United States have been engaged through our past history.

It is to me a matter of serious concern that even the most extreme advocates of non-resistance at the particular time of this great world crisis should welcome the support and cooperation of those who may differ with them on the subject of national preparedness, but who are quite as eager and enthusiastic to proclaim and maintain the cause of universal peace. I deplore the lack of tolerance on the part of certain pacifists in their obvious scorn of those who would temper zeal with wisdom in the effort to prepare against the possibility of war while at the same time putting forth every effort to secure the blessing of a permanent peace. No cause is ever promoted by a spirit of Pharisaism, and I for one object to being regarded as viewing the subject from a less elevated moral plane because I believe that the policy of preparedness is a matter of pressing national duty. In this great world campaign to establish that universal moral order which is the sole guarantee of peace, no one should repudiate the convic-

tions and efforts of those who with heart and soul seek the same end as himself.

There is no virtue in providing an adequate defense of our land. There are only two logical positions to take in reference to this question. One is that a country such as ours should completely disarm and offer no defense whatsoever to any foe, or on the other hand, that it should plan wisely and systematically an adequate defense. I assume that there is no one at the present time so ignorant of the spirit of the American people, that he would not be willing to admit the truth of the following proposition, namely, that if our country is drawn into any war, although against our will and against our desire, we will nevertheless fight to the finish for our national honor and integrity.

It would be entirely futile even to discuss the question as to the advisability of our country at the present time or in the near future wiping out its Army and Navy and pursuing the policy of absolute non-resistance. Therefore, if we have an Army and Navy which no doubt would be used in the time of a national emergency, what conceivable idea of moral obligation do we violate in insisting that the forces of such an army and navy should be efficient instead of inefficient, should be adequate instead of inadequate? No one, moreover, can deny that our present military equipment, particularly our Army, has certain defects which it would seem to be a wise policy to remedy at once. It is well known that we have only 90,000 widely scattered mobile troops available for defense, of which 60,000 are Militia, and it would take thirty days after any enemy landed on our shores to concentrate the forces of the Militia. Behind this army we have no reserves to speak of, and a deplorable shortage of men and guns in our Regular Field Artillery. We possess less than half of the needed military field batteries, and it would require three months' training to make those which we have of any avail against the forces of an enemy. In the Army reports it is stated that it would be a year and a half after any foreign enemy landed on our shores before we could provide adequate field artillery, ammunition trains, and ammunition. In view of these facts, the dictates of common sense certainly would suggest that we should prepare reasonably for an emergency which it might be necessary for us to meet by armed resistance.

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It is not sufficient in this day merely to cry peace, peace! We must face the undeniable reality of things as they are and endeavor to think clearly and act sanely concerning the actual conditions, both present and future, of our national life. We cannot command peace merely by raising our voices and summoning it to be and to prevail. Peace is not a matter merely of engrossed resolutions or of fervent sentimental appeal. The lack of preparedness to meet any great national emergency which

may prove a national calamity does not in itself create peace. It may only serve to intensify and prolong the horrors of war. We secure peace not by seeking it directly or by invoking it, but by the endeavor to create and maintain those influences which make for peace. I am not in sympathy with the peace propaganda which is being prosecuted in many of our schools so far at least as it endeavors to quicken the peace sentiment by impressing upon the minds of the young children the horrors or the economical losses of war. Such an appeal never makes any profound or permanent impression upon young minds. It is purely utilitarian and there is something about youth which is impatient with the balancing of the profit and loss elements in any adventure of life. In my experience in dealing with young men through more than a quarter of a century I know that there is only one kind of appeal which ever reaches their conviction and commands their resolution—it is the appeal to their moral sense of right, of justice, of fair play, and of decent dealing man with man in all the relations of life.

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The only valid excuse, however, for failing to prepare adequately for such a possible emergency is the conviction that it would be wrong for us as a nation to take up arms in any event whatsoever. No one can be so blind regarding the significance of present conditions as to take the position that a grave national emergency is not at least a possibility. I am aware of the fact that there are many who would urge that there is no such thing as preparedness against war, but insist that the military preparedness of a nation gives occasion for war by provoking an aggressive military spirit. I do not believe this. Preparedness does not necessarily mean a nation in arms or a nation inflamed by the false dreams of a militaristic destiny. This is conspicuously illustrated in the case of Switzerland. They are naturally a peace loving people. They also love liberty and, therefore, have prepared themselves to defend their liberty against the world. They love peace, and, therefore, are prepared to fight that war may not cross their borders. They are in no sense a military nation, and I believe that the establishment of a citizen reserve force such as that of Switzerland in no sense leads to militarism.

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President Hadley, of Yale University, in referring to the address of President Hibben, says:

The nation's unpreparedness is a standing invitation to the stronger powers of the world to come and help themselves to whatever plunder of ours they may desire. I endorse every word uttered by President Hibben, of Princeton, at the Lake Mohonk Peace Conference with regard to our unreadiness.

There are two ways for a nation to become involved in an international controversy. One is to be too much prepared for war; the other is to be too little prepared. I believe we are in the latter boat.

Dr. Andrew D. White, former president of Cornell University, who has behind him a long and brilliant career in our diplomatic service, says: "I would have a nation of men who are peaceable, but are ready for war. We are plunged into relations not only with Europe, but with the nations across the Pacific, and we must be in a position where we can have peace, even if we have to fight for it."

In its editorial columns of the issue of Sunday, May 16, under the caption, "Dr. Lyman Abbott's Many and Patriotic Confession," the New York *Sun*, says:

A sermon for today was delivered night before last by the Rev. Dr. Lyman Abbott.

Like hundreds and thousands of other good and sincere men, Christians in name and soul, Americans in head and heart, Americans in their methods of thinking as well as in their way of feeling, Dr. Lyman Abbott has believed for years that the time was near at hand when the ideals represented by the Palace at The Hague would dominate the affairs and regulate the intercourse of nations. Justice without force of arms, cannon and battleships disappearing as the Day of Reason dawned, world federation for the abolishment of war, a World Supreme Court, universal peace and the brotherhood of mankind—who that dreams at all has not dreamed with Dr. Abbott that rainbow dream of hope?

At the dinner of the United States Navy League the Rev. Dr. Lyman Abbott had the personal manliness and the true patriotism to utter these remarkable words:

"I am sorry to say that recent events have shown myself and a great many others that the era of the appeal to reason is a great deal further off than we thought. The first fundamental of government is protection of persons and property. If it does not protect it has no right to be called a government. I respect the men of the peace societies, but I do not respect their opinion. They are not preaching peace but anarchy. If there is no navy to protect neutrality on the high seas then every ship must go armed, and that would mean international piracy. I am not for war, but we do want to be prepared to meet war if it comes to us. One thing is certain, this nation must have an army and navy adequate to fulfill its duty to itself and the world."

The era of universal appeal to reason is, as Dr. Lyman Abbott says, a great deal further off than the honest friends of peace

and arbitration and disarmament have thought. How much further off, who can say?

Is it demonstrably nearer, for example, than it was 100 years ago today, when Europe was in arms for the suppression of incarnate and insatiate militarism; when Napeoleon was assembling his armies for the campaign of Waterloo?

Let us harken well to the words of this man of peace and servant of the Lord!

Similar expressions of opinion by others whose names lend weight to their patriotic injunctions might be added, but if our countrymen heed not these, it might be said of them as was said of the unbelievers of old: "If they heed not Moses and the prophets, they would not be persuaded, even if one were to arise from the dead."

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Our Machine-Gun Organization.

For fifteen years or more we have been working with a tentative machine-gun organization consisting of two guns per regiment, manned by a shifting personnel detailed from the various companies of the regiment for temporary duty. We have muddled along for years with this organization, which seems to meet the approval of no one who is associated with its work. We have maintained the organization of the machine-gun platoon ever since the adoption of this arm, not because we have been satisfied with it but apparently because we have considered the machine gun in its experimental stage. And yet in every war since we adopted this tentative organization, the machine gun has filled an increasingly important rôle until we now find its use to be indispensable on every battlefront. In German regiments the thirteenth company is a machine-gun company, officered and manned with a permanent personnel by which it is administered, instructed and fought, just as are the other companies of the regiment. It is reported that there are now more than 50,000 machine guns in use in the German army, and their use is quite as general in the armies of the Allies. Why do we still adhere to our archaic machine-gun platoon organization, which minimizes the inducements for the personnel to perfect itself in its very important duties? Are we waiting for a war of our own so that we may acquire the experience needed for the solution of this question? The experience is apt to be costly at a time when we

may have other bills to pay which, like this one, may be due to our lack of preparation. Surely the experience of others is sufficiently well known to show that our present machine-gun organization does not meet modern requirements. We need not continue to wait. The machine gun is no longer an experiment. It has come to stay. Each of our Infantry and Cavalry regiments should have a machine-gun company with a permanent personnel, armed with at least six guns. Its members should be diligently and effectively trained in the use of this very important arm, and their status should be as definitely fixed as it is in any other company of the regiment, and not be subject as it is now to the whim of circumstances or to any duty other than that which properly pertains to the machine-gun company.

In any organization of the Army that may be recommended to Congress at its next session, it is hoped that this subject may receive the attention that its importance merits, and that in any reorganization that results the status of the machine-gun force may not be overlooked. In the face of the experience of recent years, there is no excuse for the continuance of our lack of preparedness with respect to our machine-gun force.

A Regimental Library.

Under existing conditions it would seem very desirable that regiments should be provided with libraries of standard military works from which books might be issued under proper regulations for the use of regimental officers.

If an officer is to keep abreast with the requirements of his profession, a very considerable proportion of his time must be devoted to professional reading and study. If he would keep in touch with the improvements in the military art, he must have access to the standard works of the military profession. To do this requires access to a professional library. To maintain a suitable library of his own for personal use entails an expense which few of our young officers can afford. While public libraries are available in the vicinity of many of our military posts, there are few of them that would serve the purpose of a military student. The result is that most of our junior officers must necessarily lack the means of professional study. To provide

these means cooperation would seem to be the most effective method. The expense that would be prohibitory for an individual might easily be borne by the fifty officers of a regiment with but a small fraction of the cost that it would entail upon one. Furthermore, the care of the library and its transportation with the regiment could be met without additional cost to the individual officer, to whom it would be quite as available as if he owned it himself, or perhaps more so.

The increasing tendency of the War Department to keep regiments together instead of breaking them up into battalions or detached companies, as was necessary in our recent history, makes it practicable for all the officers who are with a regiment to avail themselves of the use of a regimental library. If, by chance, the companies of a regiment are separated, those officers serving apart from the headquarters would still be near enough, in the general case, to have access through the mail to the regimental library at a comparatively small cost.

The number of books needed to meet the reasonable requirements of this purpose would not be great. It would not necessarily be more than about fifty volumes. At any rate, fifty volumes would place within the reach of our officers many standard military books, to which they now have access only rarely and under exceptional circumstances. A Military Library Association formed by the officers of each regiment would, it is believed, encourage professional study, and meet an urgent need in our service.

A letter treating of this subject was recently sent out by the Association to the regimental commanders of Infantry regiments, but it seems not to have received the attention that the subject merits. The purpose of the Association is cooperation, and the Council is ready to do its part in such cooperation without pecuniary profit and with careful consideration for the wishes of each regiment that may be interested in the subject.

"Regimental Bulletins.

Special attention is invited to the article headed "Regimental Bulletins" published herein. We believe that it will appeal to all our regiments, and hope that the bulletins may soon be issued

in every regiment in the service. They would do much to promote regimental spirit and to keep absent officers in touch with their organizations. They would be welcomed like letters from home, for, after all, the home of the line officer is his regiment.

Those of us who remember the strength of the old regimental feeling that prevailed in regiments in the days of regimental promotion know what a powerful asset it was in creating a community of feeling and sentiment. In many of our regiments the *esprit de corps* developed at that time is still a living force today. While lineal promotion has brought us many undoubted advantages, the decrease of this affection for one's regiment—for his regimental home—is not one of them. Anything that we can do to conserve what is left of it, or to revive it under existing conditions ought to have our cordial support.

Moreover, regimental records of this kind if preserved would be invaluable as contemporary regimental histories. It is not known that any such records have been kept in the past, but there are none of us who would not as highly prize them, if they had been kept, as if they were our own family records.

Limiting Matrimony in the Army.

While discussing in the *Army and Navy Journal* of May 28 the question of the proposed prohibition of the marriage of second lieutenants, a "Second Lieutenant" says:

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If we were not burdened with such exaggerated ideas of social duties, and the unnecessary and expensive uniforms, etc., incident thereto, this question would not arise. The writer personally has $200 or $300 tied up in unnecessary uniforms. One suit costing, with its accessories, $120, has been worn once in three years' service. If we were relieved of the necessity of owning some of these unnecessary fine feathers, we would manage to live, marry and do our end of the work with the same, if not a higher degree of efficiency than if marriage, the greatest stabilizer in a man's life, is taken away from us in order to give us more of our pay for social frivolities.

This criticism expresses the opinion of nine out of ten of the lieutenants of the Army who are dependent upon their salaries. A large proportion of the officers of other grades would also be

found to be of the same opinion. While further changes in uniforms, involving the officers in needless expense, are by no means desired in the line of the Army, there is a decided opinion prevalent that many articles of uniform that are now required might be omitted with very great advantage to the officers concerned, and to the service in general, before taking up the subject of the prohibition of matrimony on the part of the junior officers. After making the economies that would result from abolishing unnecessary uniforms, we might with propriety and with much greater reason consider the prohibition of matrimony in the Army, if it be found necessary for officers to economize still further. Ours is a republican army and its uniform should be a republican uniform, not a composite of the gew-gaws that grew to be the fashion in monarchial armies and among unrepublican people.

The Class of 1915.

The Infantry Association extends its heartiest congratulations to the young men of the graduating class at West Point on the successful termination of their course of study at the military academy, and wishes them a warm welcome into the commissioned ranks of the Army. We refrain from trying to add to the abundance of good advice that has been offered them so recently, lest their memory, which has been under no little strain in the last four years, should be overtaxed.

It has been wisely decreed by a generous government that they should now enjoy a period of rest and recreation and that before taking up their new responsibilities they shall have an opportunity again to get into touch with this prosy, old work-a-day world on which they turned their backs some four years ago. It is much the same old world as it was before they were interned, abounding in comedy and tragedy, in laughter and tears, in ruined hopes and lofty aspirations. They will find, however, that their point of view has greatly changed. They will also soon find a stern official step-father on hand to take the place of the cherishing official mother that has fondly guided their footsteps during their official novitiate on the banks of the Hudson. But we hope that the prospect of this changed official parenthood

may not mar the pleasant dreams that will haunt them in the three golden months that now open up immediately before them—dreams that may ripen into realities in the coming years, dreams perchance of fame and fortune, or love and tenderness, of honorable service and high endeavor, such dreams as should come to all with the youth and strength of young manhood to keep it pure and strong amidst the trials and temptations that it is destined to meet in journeying along through life. No matter whether they cast their lot with our own arm of the service or with another, our good wishes will ever go with them, gladdened by their successes, which we hope may be many, and saddened by their defeats and disappointments, if such there should be, but always accompanied by the hope that in success as well as in disappointment and defeat, they will bear themselves like men—like such men as their watchful *Alma Mater* has always sought to send out from under her watchful care.

Book Reviews.

Arms and the Race. By R. M. Johnston, Assistant Professor of Modern History, Harvard University. New York: The Century Co., 1915. Cloth, 12mo., 219 pages. Price, $1.00.

In the work before us, which Prof. Johnston has dedicated to the Hon. Elihu Root, he is careful to tell the pacifists in his preface that it is not the creation of an overheated imagination. The nine chapters deal with armies in the eighteenth century, the art of war, the national army, national military policies, Kruppism and disarmament, Europe, Asia and America, military experiences of the United States, our national defense policy, and organization. He traces the origin of our prejudice against a standing army, finding it of course in the fact that up to the time of the Civil War in England and the Revolution of 1789 in France, soldiers were professional, hiring themselves to the monarch who treated them best. It was this fact which led the thrifty electors of Hesse to provide those mercenaries the thought of whom arouses the indignation of every American school boy without his knowing that there was nothing unusual in the event. Like many other reforms whose far-reaching effects could not at the time be foreseen by their authors, it was the decision of the States General in 1789 that the finances of the nation belonged to the people and not to the monarch, which ended the career of the professional soldier and created a national army. Why was the inferior infantry of the Revolution able to cope successfully with their professional opponents? Prof. Johnston assigns four reasons: (1) development of artillery, (2) the new tactics of small columns, (3) the social revolution with its resulting patriotic fervor, and (4) their numbers, due to the conscription law of 1798. But Bonaparte, carried away by the ease with which he could overthrow kings, failed signally in one vital matter which was destined to transfer military superiority to the Prussian, viz: A thoroughly prepared staff organization. This idea was first realized by Von Massenbach, chief of staff to Hohenlohe in the Jena campaign. It was taken up and de-

veloped by Scharnhorst, who also brought forward the idea of reserves forced upon him in the treaty of peace whereby Prussia was forbidden to maintain more than 42,000 men in her regular army. Both were vindicated under Blücher at Leipzig and Waterloo. The condition in which the Congress of Vienna left the Teutonic and Latin elements of Europe caused an unstable equilibrium, brought about the wars of 1859, 1866 and 1870, and is reflected in the present great conflict. The success of the Germans in 1866 and 1870 was due to a common doctrine of war and their staff. They were perfectly willing to let the press of the world gain the impression of their perfection, but they themselves knew that they had failed in maintaining cohesion in their infantry under the shock of battle. Henceforward their whole attention was directed to this defect with what success we are now witnessing. It has been done through psychology in practically fanaticizing the German soldier. The author devotes his last three chapters to the military lessons of our own experiences, reaching the perfectly natural conclusion that our troubles have arisen primarily from a lack of numbers in our regular land forces at the outbreak of war and our lack of organization. He has endeavored to arrive at what he considers the minimum strength of the mobile army, which he estimates as follows:

Garrisons of non-contiguous territory	43,600
At home, three army corps	130,800
	174,400
Within three months add three army corps of volunteers (maintained as militia in time of peace)	130,800
Total	305,200

This force to be doubled in six months. This does not include coast artillery, of which the author makes the following interesting observation:

> The coast defense theory, under which vast sums of public money have been and are being spent, is largely absurd. It is the one part of our military preparations that is being over instead of underdone; and it is quite time that the matter were investigated out of its present dangerous groove. . . .
>
> It is worse than ridiculous to continue dealing with it on a basis of reassuring formulas about defending our 'coast,' formulas that cloak false military principles and the squandering of

public money. The danger of an attack by a raiding cruiser on a port can be solved simply and economically by a competent board of experts. The landing of an expeditionary force can be dealt with in only one way, which is by an immediate concentration of equal or superior numbers of troops. To protect every landing place on our coast lines is a fantastic proposal.

It is just cause for congratulation that an American college professor should give us so valuable a resumé of the art of war and have devoted to our military history the attention necessary to set forth the defects of our military system with the accuracy which Prof. Johnston has done it. He has contributed one of the few military books since the European war worth the time of a soldier to read.

I. L. H.

The Present Military Situation in the United States. By Francis Vinton Greene. New York: Charles Scribner's Sons, 1915. Octavo, cloth, 102 pages. Price 75c.

This is substantially a reprint of an address delivered by Gen. Greene before the Economic Club, of Portland, Me. It treats of the subject of the present military situation in the United States with the calmness and conservatism that ought to secure for it the careful consideration of the American people. Devoid of the hysteria that is characteristic of so many extremists of both types, it deals with facts to which we should not close our eyes, no matter what may be the conclusions to which they point.

The author opens the subject of which he treats by a brief sketch of the efforts made after the close of the Civil War to formulate a military policy and a system of national defense suited to our needs. The commission created for this purpose was headed by Gen. Sherman, and the author speaks authoritatively of its work, for he was for a time its secretary. With the assistance of the eminent soldiers of that period and of other distinguished men then in public life, it made its report, after research extending over a space of many months, to Congress, where it was debated and discussed and then printed and—dropped. Two years later a joint committee on the reorganization of the Army, "the Burnside Committee," took up the work, reported upon it again, the report was printed, debated and

again dropped. That was some thirty years ago, when it might be said that Congress was largely a Congress of our ex-volunteer soldiers, and the subject has hardly received serious consideration since. Our people were busy at that time with new problems. War seemed but a remote possibility of the future. The national energy was diverted into the solution of the great constructive problems which called for the best talent of our country. Even the author was carried away from the military work for which he had been trained and threw himself, as did so many other soldiers, into the work to which the times seemed to call him. War seemed to be a thing of the past and the belief prevailed then, as in the minds of many it prevails now, that "there was no military situation in the United States worth thinking about."

The war of 1898 awakened us for a brief period to the fact that the millennium had not yet arrived. We drifted into war by the compulsion of public sentiment, not because the Government desired it. This war was soon followed by The Hague conference and the establishment of the "Peace Foundation," since when we have been almost constantly in the presence of war or amidst rumors of wars, until now we find ourselves confronted by a catacylsm involving nearly all of civilization, in which treaties of peace and decrees of The Hague conferences are but scraps of paper. But the author is not carried off his feet by these portentious events. He says: "There is no need of excitement about it, no cause for hysteria. We do not need in this country an army of 700,000 men as some ill-balanced enthusiasts demand. We are not compelled to; and we will not enter the battleship race with England and Germany, * * * but we do need to give as much thought to this matter as is necessary in order to compel our representatives in Congress so to organize our latent but enormous strength that no nation shall ever undertake to disturb our security, or attempt to prevent us from working out our great destiny in pursuits of peace."

He then discusses the question, "Does preparation for war result in preserving peace or in inviting war?" and after a brief analysis of the question concludes that "such preparation does not invite war but does, on the contrary, tend to prevent war," and "does everything that human foresight can suggest to pre-

vent that horrible calamity." In support of this conclusion he cites the frequently expressed opinion of Washington, "who over and over again, on every suitable occasion during the sixteen years between the close of the Revolution and his death in 1799 argues with his unrivaled wisdom and with all the force of his strong nature, in the effort to convince his countrymen of the soundness of his views," which the author freely cites as to preparedness for national defense.

I beseech you, therefore, with all the earnestness I can command to study what Washington wrote concerning the necessity of preparing for war in time of peace. * * * His views on this subject like the principles of strategy are eternal. They have not been changed by steam or electricity or the marvelous industrial development of the nineteenth century and the early part of the twentieth century in which we are privileged to live. They are fixed and immutable. * * * Our situation in the year of 1915 is as different from our situation at the close of the eighteenth century as it is possible for the human mind to imagine; but the writings of Washington on this question of national defense are just as wise, just as pertinent, just as applicable today as they were when they were uttered a century and a quarter ago.

General Greene then takes up the question, "is there any such danger of our being attacked either on the Atlantic coast or on the Pacific coast, or on the 3,000 miles of Canadian border line, that ordinary caution and prudence, such caution and prudence as we exercise to prevent a remote but possible disaster in our private business, make it incumbent on us as plain, sensible people, to take measures, first, to prevent such an attack, if it be in our power to prevent it; and secondly, to repel their attack, if we cannot prevent it, and repel it in such a manner that the nation which undertakes it will never attempt it a second time?"

The author then goes no to analyze the force of alliances and treaties in the light of history showing that by the shifting of interest the alliance or international friendship of one period becomes changed into the hostility or even belligerency of another, and cites the opinion of Washington, expressed in one of his letters, in which he discussed the proposed French alliance, and said, "It is a maxim founded on the universal experience of mankind, that no nation is to be trusted further than it is bound by its interests." He then points out the possibilities of international complications which threaten us from the East and from

the West as well as from the South. That these possibilities are actually considered by our neighbors seems apparent to all except to our own people, and have formed the basis of official study as indicated by von Edelsheim's "Operations upon the Sea," in which the subject is seriously treated by that author, who goes into the details of a plan for the invasion of the United States. Gen. Greene comments on the proposed plan as follows: "I have no doubt that Freiherr von Edelsheim's advice has been carefully followed, that the project of a war with the United States, in successive units of, say 240,000 men each, has all been made, docketed, and put away in the appropriate pigeon-hole, in the office of the German general staff in Berlin until it shall be called for. I confess to an intense curiosity (which is not likely to be satisfied) to see this document. In the absence of that I shall * * give you a summary of Baron von Edelsheim's plan as he has disclosed it in his interesting little book." It a later stage of the discussion, page 78 *et seq.*, Gen. Greene presents a summary of these plans and briefly discusses their practicability in a way which ought to be of more than passing interest to our people.

Our author pleads for a just and generous treatment of our Western neighbors and believes that such a policy, consistently pursued, would insure us peace on the Pacific, where he sees no substantial reason to apprehend friction unless it should be provoked by unwise and discriminating legislation on our part.

The author then discusses the outlook into the future as influenced by the "progress' of mankind into a state in which wars shall cease. He does not believe that the nature of man changes so that "universal peace is a possibility worthy of consideration. Doubtless man's nature does slowly change, but only on the scale used by the Psalmist when he said: a thousand years in the sight of the Lord are but as yesterday when it is passed, and as a watch in the night." While arbitration and "progress" and Hague conferences may tend to make the occurrence of war less likely in the future, he believes that the result which pacifists expect from them is but an "iridescent dream" and he cites the wars in which we ourselves have been engaged, from the War of the Revolution to that of 1898, as wars the prevention of which by arbitration was not even thinkable.

He next pays his respects to Angell, the author of "The Great Illusion," and shows how the writer of that work appears by the present war to have been himself the victim of an illusion, that treaties are sacred and inviolable—a theory on which he seems to base the whole superstructure of his work.

The author closes his work by a recital of the facts bearing on the military situation of the United States as indicated in the latest report of Secretary Garrison, and while Gen. Greene does not propound any specific plan to meet our necessities, he pleads with his countrymen to support the recommendations of the governmental authority to which this grave question is committed for solution.

This book is brief, forcible and clear, and tells in a few pages what ought to be brought to the serious consideration of every American citizen who is solicitious for the welfare of his country. While Gen. Greene was a distinguished soldier in his youth, in the War of 1898 and in the Philippine Insurection, most of his life has been devoted to civil pursuits. His plea is not the plea of a "militarist" but the plea of a clear-sighted American citizen who loves his country, and who believes that it is worth saving from the dangers which confront it by reason of its unpreparedness for defense.

America Fallen. By J. Bernard Walker. New York: Dodd, Mead & Co., 1915. Cloth, 12mo, 203 pages, Price, 75c.

The author has made use of accurate information regarding our land forces to draw a vivid picture of possible consequences of our present unpreparedness for national defense. He assumes that Germany has decided by the spring of 1916 that she can make no headway with the odds against her, and the peace congress meets at Geneva. The terms of the Allies are the surrender of the German fleet and an indemnity of fifteen billion dollars. She refuses both and negotiations are broken off. They are later resumed and much to the surprise of the allied delegates the German representative states he has orders from Berlin to accept the indemnity, but to refuse the surrender of a single ship. England is compelled by her allies to accept this settlement and the treaty of peace is signed. The question in every one's mind is: How can Germany assume such a burden of debt? The

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answer is the *motif* for our author's work. The German Emperor contracts a secret treaty with Denmark for the purchase of St. Thomas. The censorship is still tightly drawn in Germany, but it is announced there will be a grand review of the German fleet off Heligoland. When the admirals of the two fleets put to sea for maneuvers they open their sealed orders to find that one is ordered to the Caribbean and the other to a point off New York. On March 31st the news of the purchase of St. Thomas is published in America. The press, as usual, is loud for war. Germany declares war on the night of the thirty-first, our fleet being in Mexican waters. Large transports have moved 200,000 picked veterans of the European conflict by unfrequented trade routes to points off Boston, New York and into the Chesapeake. By daylight of the following morning German submarines have blown up the lock gates and all shipping in the navy yards of Boston, New York, Norfolk and the entrance of the Panama canal; troops have landed and

taken in detail from the rear the harbor forts of Boston and New York. By noon these cities lie helpless before the German fleets, and America is required to start payment on the German indemnity, of which five hundred million in gold is transferred to the German fleet at New York and two hundred million at Boston within twenty-four hours. "In short," says the author, "within a few hours of occupation, the enemy has provided our coast fortifications with those organized defenses, on the land side, which, had Congress given heed to the recommendations of its military advisers, would have long ago been completed and would have served to hold the enemy at bay until reinforcements could have been brought up in sufficient strength to drive him back to sea." The force in the Chesapeake lands near Annapolis and captures Washington, a strong advance guard of cyclists being sufficient to overcome the garrisons at Fort Myer and Washington Barracks. Within twenty-four hours our coast from the Chesapeake to Boston is completely in the enemy's hands, the capital is moved to Pittsburgh, and the first German fleet sails for the Carribbean where it joins the second north of Cuba just in time to turn a drawn battle with our Atlantic fleet into a decisive victory. By superhuman effort, in three weeks we have collected 140,000 Regulars and militia near Pittsburgh, which are defeated after two days of fighting and the capital moves to Cincinnati; seeing the hopelessness of further resistance, America agrees to pay the remaining twelve billions of indemnity, eight billions having been already collected from our sea-coast cities.

The tragic events recited are supposed to take place on April 1, but granting only the element of surprise, there is no reason why they should not take place on any other day of the year.

I. L. H.

Wars' New Weapons. By Baron Hrolf von Dewitz, with introductory preface by Hudson Maxim. New York: Dodd, Mead & Co., 1915. Cloth, demy 8vo, 295 pages, illustrated. Price 1.50 net.

Mr. Hudson Maxim, in an introduction to this book says that the people of the United States have a great false faith in the fighting qualities of our citizen soldiery, improvised in time of

war, but they overlook the fact that the present era is one of machinery and much of modern war is the operation of engines and implements; that it is as absurd to think of present-day guns, motors, aircraft, submarines and what-not, as it would be to try to operate the factories where the implements of war are made with the same untrained men.

Conceding that modern war is in large part the operation of machinery, the author has clearly and in non-technical language given a graphic and interesting description of some of the implements and engines with which war is conducted. Each chapter opens with a fanciful picture of one of war's new weapons in action, that thrills and oftentimes gives a creepy feeling as its ghastly significance is realized. This is followed by a more or less detailed description of the weapon itself. Most of these chapters show a considerable knowledge of the subject discussed, but the author was unfortunate in not having his chapter on wireless telegraphy first read by some one with a technical knowledge of the subject. He confuses the usual signaling and intelligence troops and matériel with the specialized radio operators and

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speaks of one station with a wave length of 900 miles, and the rate of operation over land lines as being 400 words per minute. The other chapters, however, do not display such careless mistakes.

His conclusion that "there is nothing the matter with the peace proposition in itself, but that it needs the backing of armed force," somehow reminds one of the remark of the late William T. Stead, when he said he could never attend a peace conference without becoming belligerent.

Defenseless America. By Hudson Maxim. New York: Hearst's International Library, 1915. Cloth, 8vo, 318 pages. Price, $2.00.

Since the outbreak of the European war many volumes have been published dealing with various phases of the great conflict, some of them interesting and instructive, and destined to survive, but most only serve to cumber library shelves. Everyone even temporarily connected with any of the countries at war seems to have found a publisher willing to take chances of making sufficient sales to pay the cost of publication of a book. In addition, there have been issued quite a number of books on the unpreparedness of the United States to defend its national integrity. This is beyond question a subject of vital interest to us all, but most of the authors who have treated of it have seemed to despair of rousing our people to the real interest of the country. Our people still believe that we can "whip all tarnation," and the lesson of Belgium goes unheeded. The publishers say that "Defenseless America" is a call to arms and a battle cry, the conclusion of the author being that the United States is defenseless either to prevent war or to save itself from disaster should war come; while its very unpreparedness makes war inevitable; that it is sleeping in fancied security while the flood of war is gathering to overwhem it, and that unless it takes an immediate stand for national defense, it shall in the near future, be compelled to stand by mourning on the fire-blackened desolation of its war-ruined homes. Mr. Maxim makes a vigorous appeal to the American people to adequately prepare as an insurance against war, and to save the country from disaster and

desolation. The graphic charts which illustrate the book, showing the majority of our arms and munition factories located within a radius of 170 miles from Peekskill, have been largely reproduced in the newspaper press, and are convincing evidence that an enemy would not find it difficult to turn these industries into a weapon against ourselves.

International Military Digest. A monthly review of the current literature of military service, June, 1915, governing May, 1915. Published by the *International Military Digest*, 241 W. 37th Street, New York. Price, $3.00 per annum.

This is the first number of a monthly periodical which is issued primarily for military readers and students. It enters a new field, and will doubtless receive a warm welcome from all who are interested in current military events as discussed in the leading periodicals of the world, military and civilian. The labor of all who wish to keep abreast with military improvement, to keep in touch with the military literature of the world or who desire to specialize on any given military subject, will be made much lighter and their work more effective by reference to this very valuable periodical, whose appearance is most timely. Current military literature has increased so enormously in volume in recent years that without some such assistance as is given by the Digest the military student might well despair in his effort to separate the wheat of military publications from the chaff. The names of the editors, Col. Wilcox and Lieut.-Col. Stuart, of West Point, are a guarantee of the value of the publication, which ought to find a place in every public library and on the desk of every military student wherever the English language is spoken.

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All communications should be addressed to the Secretary, United States Infantry Association, Room 518, Union Trust Building, Washington, D. C.

A CORRECTION.

On page 814, Vol. XI, No. 6, The New German Field Uniform, the name of the author should be Hilmar H. Weber, and on page 817, line 7, for "black-red cuffs," read "black round cuffs."

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